A

JOURNEY FROM MADRAS

THROUGH THE COUNTRIES OF

MYSORE, CANARA, AND MALABAR,

PERFORMED UNDER THE ORDERS OF

THE MOST NOBLE THE MARQUIS WELLESLEY,

GOVERNOR GENERAL OF INDIA,

FOR THE EXPRESS PURPOSE OF INVESTIGATING THE STATE OF

AGRICULTURE, ARTS, AND COMMERCE; THE RELIGION, MANNERS, AND CUSTOMS; THE HISTORY NATURAL AND CIVIL, AND ANTIQUITIES,

IN THE DOMINIONS OF

THE RAJAH OF MYSORE,

AND THE COUNTRIES ACQUIRED BY

THE HONOURABLE EAST INDIA COMPANY,

IN THE LATE AND FORMER WARS, FROM TIPPOO SULTAUN.

BY FRANCIS BUCHANAN, M. D.

FELLOW OF THE ROYAL SOCIETY, AND OF THE SOCIETY OF ANTIQUARIES OF LONDON; FELLOW OF THE ASIATIC SOCIETY OF CALCUTTA; AND IN THE MEDICAL SERVICE OF THE HONOURABLE COMPANY ON THE BENGAL ESTABLISHMENT.

PUBLISHED UNDER THE AUTHORITY AND PATRONAGE OF

THE HONOURABLE THE DIRECTORS OF THE EAST INDIA COMPANY.

ILLUSTRATED BY A MAP AND NUMEROUS OTHER ENGRAVINGS.

IN THREE VOLUMES.

VOL. I.

LONDON:

PRINTED FOR T. CADELL AND W. DAVIES (BOOKSELLERS TO THE ASIATIC SOCIETY), IN THE STRAND; AND BLACK, PARRY, AND KINGSBURY (BOOKSELLERS TO THE EAST INDIA COMPANY), IN LEADENHALL STREET;

BY W. BULMER AND CO. CLEVELAND ROW, ST. JAMES'S.

1807.

DEDICATED, WITH PERMISSION,

TO THE HONOURABLE

THE COURT OF DIRECTORS

FOR THE AFFAIRS

OF THE

UNITED COMPANY OF MERCHANTS OF ENGLAND

TRADING TO THE EAST INDIES,

BY

THEIR MOST OBEDIENT,

AND MOST HUMBLE SERVANT,

THE AUTHOR.

INTRODUCTION.

A COPY of the following Work, which was transmitted to the Directors of the East India Company, having been placed in their Library, Mr. Wilkins, who has charge of that valuable Institution, thought that its publication might be useful, and recommended that measure to the patronage of the Court; which, with great liberality, consented to his request, and encouraged the undertaking by a large subscription. Accordingly, in the end of the year 1805 an agreement was made with some respectable booksellers. Soon afterwards, my duty having unexpectedly brought me to England, I was agreeably surprised to find that my Journal had obtained a reception so favourable. It is true, I wished to have abridged the Work before publication, and altered its arrangement; but as the printing had commenced before my arrival, and as my stay in England was likely to be very short, I could not undertake such alterations. I have, therefore, contented myself with revising the manuscript; and the superintendency of the press has been entrusted to Mr. Stephen Jones. I hope, however, that the Index will enable the reader to understand the greater part of the Indian terms, and

at the same time will in some measure supply the want of method, in which I am sorry that the Work is so deficient.

The following Instructions, which I received from the Governor General, before I commenced my Journey, will sufficiently explain the views which that distinguished Nobleman had in employing me.

Copy of the Governor General's Instructions, dated Fort William, 24th February 1800.

" Your enquiries are to extend throughout the dominions of the present *Rájá* of *Mysore*, and the country acquired by the Company, in the late war, from the *Sultan*, as well as to that part of *Malabar* which the Company annexed to their own territories in the former war under Marquis Cornwallis."

" The first great and essential object of your attention should be, the Agriculture of the Country; under which head, your enquiries should include and tend to ascertain the following points with as much accuracy as local circumstances will admit."

Esculent Vegetables.

" The different kinds cultivated by the farmers and natives in general, for sale or common use; the modes of cultivation adopted for each kind, and the implements of husbandry used in them; the seasons when they are sown and gathered; the manures used for the soil; and the means adopted for watering their grounds; and as the effecting this last point, in a cheap and easy manner, is an essential object to the common farmers in this country (Bengal), it would be eligible to have either models or drawings made of any description of machinery which may not have been seen by you in these parts of India, and which may

appear to you to be likely to effect so beneficial an end. It would also be advisable for you to observe whether the poorer natives make use of any vegetables for food, which you may have seen in this country, but which may not here be in use for human food."

Cattle.

"The different breeds, and the manner in which they are bred and kept; the species used in agriculture; and whether the produce of the country be sufficient, without importation, to answer its demands. And as the improvement of the breed of horses in this country has become an object of particular attention to government, it would be proper for you to ascertain how far the breed made use of, in the parts you may visit, might be eligible to promote this desirable end."

Farms.

"The general extent of them; the nature of the tenures by which they are held; the usual price of labour, and the manner of payment, whether in kind or specie. You will compare the general state of agriculture in *Mysore*, &c. with that of such parts of Bengal as you may be acquainted with; and state your opinion, how far the cultivation of either country may be improved, or extended, by the introduction of the vegetables, cattle, or rural economy of the other."

"The next immediate object of your attention should be, those natural productions of the country, which are made use of in arts, manufactures, or medicine, and particularly those which are objects of external commerce."

Cotton, Pepper, Sandal-wood, and Cardamoms.

" Of the cultivation and preparation of these valuable articles you should endeavour to gain the fullest and most accurate accounts, as well as of the nature and extent of the trade carried on in them; the usages which may have obtained concerning them; the causes, if any there may be, which may seem to obstruct improvement in quality, or extension in produce, of either of them; and the means to your judgment most likely to remove these causes."

Mines, Quarries, Minerals, and Mineral Springs.

" The mines and quarries, as objects of particular concern, you should make a subject of more minute investigation, in so far as relates to their produce; the mode of working them; the state of the people employed in them, as well in respect to the condition of their service as to their treatment, or the price of their labour. In regard to the Minerals and Mineral Springs, they should be examined with attention, and such of them analyzed as may be esteemed medicinal by the people themselves, or you may judge to be so."

Manufactures and Manufacturers.

" The state of the manufactures is a farther object of consequence, especially of those which are exported; you should therefore procure as exact an account of the different kinds, as may be practicable, and of the ability of the country itself to furnish the materials used in them; and you should ascertain what proportion, if any, is necessary to be imported from other countries; from what countries, and under what advantages or

disadvantages, such importation now is or might be made. You should also make it an object of particular attention to ascertain how far the introduction of any of the manufactures of *Mysore* into any other of the Company's possessions, might be productive of advantage, and respectively whether *Mysore* might derive advantage from the importation of the growth, produce, or manufacture of Bengal, or any other parts of the Company's possessions. The situation of the manufacturers should likewise be examined; the mode of providing their goods; the usual rate of their labour; any particular advantages which they may enjoy; their comparative affluence, with those of this country; their domestic usages; the general nature of their sales; and any regulations respecting their markets."

Climate and Seasons of Mysore.

" Of these you should endeavour to obtain an accurate account, as well as of the prevailing winds, and the effects of the air, in its various states of heat and moisture, on the human body; and it will be farther desirable, that you should form from your own observation, and the reports of such other persons as you may judge worthy of attention, an estimate of the salubrity of the country compared with that of the Company's other principal possessions in India."

" Although it may not be in your power, exactly to ascertain the extent of the forests, yet you will make this an object of your enquiry, as well as the kinds of trees of which they may chiefly consist, and report those kinds which you may judge useful for timber or other purposes; you will also state your opinion, with respect to the kinds either of timber or fruit trees which you may conceive it useful to introduce into this country."

Inhabitants.

" The condition of the inhabitants in general, in regard to their food, clothing, and habitations, will engage your particular attention: you will also enquire how far their situation, in these respects, may have been affected by the different changes in the government."

" The different sects and tribes, of which the body of the people is composed, will merit your observance; you will likewise note whatever may appear to you worthy of remark in their laws, customs, &c.; and state, with as much accuracy as may be in your power, the nature of their common usages in matters of personal traffick at their markets, their weights and measures, the exchange of money, and the currency among the lower orders of people: and such matters in respect to their police, as may seem to you to have an immediate or particular tendency towards the protection, security, and comfort of the lower orders of the people."

" You will take every opportunity of forwarding to the Company's Botanical Garden at this Presidency, whatever useful, or rare, and curious plants and seeds you may be enabled to acquire, in the progress of your researches, with such observations on their nature and culture as may be necessary."

" You will collect and forward specimens by every proper opportunity to the Right Honourable the Governor General in Council, of whatever you may deem curious, or interesting, amongst the natural productions of the country, or in the arts and manufactures of the inhabitants; and though the general report of your mission cannot, probably, be completed until after your return to this Presidency, you will from time to time submit to his Lordship any observation, which may occur to you, of

which the immediate communication may appear to be of public utility."

In consequence of the two last paragraphs of these instructions, I transmitted a considerable number of seeds to Dr. Roxburgh, and made a collection of descriptions and drawings of the more unknown plants. These last it was my intention to have published with this Work; but the booksellers declining to incur the necessary expense, I have given them to my friend Dr. James Edward Smith, who, I hope, will publish some part in his Exotic Botany. I also collected for the Governor General specimens of the minerals mentioned in this Work, which his Lordship directed me to present to the Company's Library in Leadenhall-street, in which they have been deposited.

Major C. Crawford has had the goodness to prepare the accompanying Map; which will enable the reader to trace my route, and to judge of the opportunities that I had of viewing the country. On a Map of Major Rennell, he laid down a sketch of my route, which I made on the Journey. The very imperfect nature of the materials rendered many errors unavoidable. Some of the most considerable of these I have since corrected from a Map which Lieutenant Colonel Mackensie has had the goodness to communicate. I regret exceedingly, that I did not receive it in time to allow me to avail myself of the numerous geographical improvements that it contains.

I am indebted to the Marquis Wellesley for the beautiful Drawings from which the engravings of the *Mysore* Princes have been taken; and I cannot conclude without thankfully mentioning the very liberal and effectual manner in which I was encouraged by every person in the Madras Government, and especially by the nobleman then at its head, now Earl of Powis.

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ERRATA TO VOL. I.

Page.	line.
25	15 and 21. } for *Naieka*, *Naiekan'*, and *Naiekana*,
28	12, 24, } read *Náyaka*, *Náyakan'*, and *Ná-*
	27, and 30. } *yakana*.
	26, for *Mysoor* read *Mysore*.
32	7, for *Carnataca* read *Karnataca*.
52	25, } for *Chinapatana* read *Chenapatana*.
53	11, }
58	10, for *Kavari* read *Kaveri*.
85	12, for *Noti* read *Nati*.
113	last, omit *dulcis*.
114	14, for *Sultana* read *Sultany*.
	19, for *betel* read *Betle*.
137	7, and 11, for *talc* read *mica*.
139	1 and 6, for *Madura* read *Muduru*.
142	19, for *Budha* read *Buddha*
155	1, omit *dulcis*.
160	last, for *checks* read *cheeks*.
162	17, for lb. 10,617 read lb. 1,0617.
214	5, for *dry* read *dye*.
292	22, for *Panshya* read *Paushya*.
295	4, for *on* read *in*.
312	16, for *Virapaeshima* read *Virapacshima*.
327	14, for *Caftas* read *Baftas*.
338	3, for *or* read *of*.
368	3, for *beat* read *beaten*.
416	5, for *Rajawully* read *Rajawutty*.
	22, for *Lechmeshura* read *Leckmeshura*.

A

JOURNEY FROM MADRAS, &c.

CHAPTER I.

FROM MADRAS TO CONJEVERAM, ARCOT, VELLORE, PALIGONDA, SATGUDAM, PEDDA NAIKENA DURGA, VENCATAGHERY, BAYDAMUNGULUM, WALURU, CATCOLLI, TAYCULUM, BANGALORE, AND SERINGAPATAM.

CHAPTER I.

Vicinity of *Madras*.

MY inquiries could not commence, with proper effect, till after my arrival at *Seringapatam*, nor until I had there procured sufficient authority from the *Raja's Dewan*; I trust, however, that my observations on the appearance of the country, as I passed along, will not be considered as entirely useless.

In the afternoon of the 23d *April* 1800, I set out from *Madras*, in the very hot dry weather, which usually prevails at this season. After leaving the plain occupied by the houses of Europeans, I entered a country then scorched up by a powerful sun, yet containing little waste land; for the soil, being fine, produces a very good crop of rice, provided, in the wet season, the usual quantity of rain falls. In some places, the industry of the natives causes a verdure that is highly refreshing, by watering a few fields, that are near tanks, or reservoirs of water. These fields are now covered with rice, approaching to maturity; and in the rainy season they will yield another crop. The appearance of the country, however, at

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this time of the year, is dreary. It is almost as level as *Bengal:* and in general forms a naked, brown, dusty plain, with few villages, or any thing to relieve the eye, except a ridge of abrupt detached hills toward the south. The roads are good; and many of the huts being built of mud, and neatly covered with tiles, have a better appearance than those in *Bengal:* but the roofs of such as are thatched look ragged; as the thatch is not composed of smooth straw, but of palmira leaves, which never can be put on with neatness.

Accommodations for travellers.

Near the road, charitable persons have built many resting-places for porters, who here carry all their burdens on the head. These resting-places consist of a wall about four feet high, on which the porters can deposit their burdens, and from which, after having rested themselves, they can again, without assistance, take up their loads. The inns, or *Choultries,* which are common on the road, evince an attention to travellers not to be found in *Bengal.* At these places, the poorest, without expense, have shelter from the inclemencies of the weather; and the richer traveller, can purchase both for himself and for his cattle, at least the necessaries of life.

Improvements.

This part of the country, although at present naked, seems capable of raising trees and hedges; and shows evident appearances of its being in a state of improvement, there being in view many new plantations, especially of fruit-trees, and coco-nut palms.

Irrigation.

Leaving on the right the road to *Poonamalee,* I went to *Condaturu,* near which the country assumes a very different, and a very pleasing aspect. Numerous small canals, from the *Saymbrumbacum* tank, convey a constant supply of water to most of the neighbouring fields, and fertilize them without the trouble of machinery. They consequently yield every year two crops of rice. The one at present on the ground will be reaped in June, and has a very promising appearance.

Manner of securing the rent.

Instead of preventing the crops from being cut down, till the rent is paid, as is usual in *Bengal,* the custom here is, to collect

CHAPTER I.

the grain in stacks, or heaps, after it has been thrashed out on the field. In order to guard against embezzlement, several pieces of clay, stamped with a seal, are then put on the surface of the heap; and, to prevent injury from the weather, it is thatched. The grain continues in these heaps, till the cultivator is able to satisfy the renter, either by advancing money, or by dividing the produce. In every village a particular officer, called *Talliari*, keeps watch at night, and is answerable for all that may be stolen.

Cattle.

The cattle in the neighbourhood of *Madras*, are of the species which is common to the *Decan;* but much smaller than those, which are brought from the northern parts of that country. They seem, however, to be larger than the cattle produced in the southern parts of *Bengal.* They are mostly light-brown, or white, and notwithstanding the apparent want of pasture, are in better condition than the labouring cattle of *Bengal,* owing probably to the superior care that is taken of the rice straw by the inhabitants of *Madras.* Milch cows are fed entirely on grass; grain, or pulse, is rarely given to such cattle as are not employed in hard labour.

Buffaloes.

Near *Madras,* Buffaloes are in general use, and are often yoked in the same cart with bullocks, although the paces of the two animals are very different. The buffaloes here are much smaller than in *Bengal*.

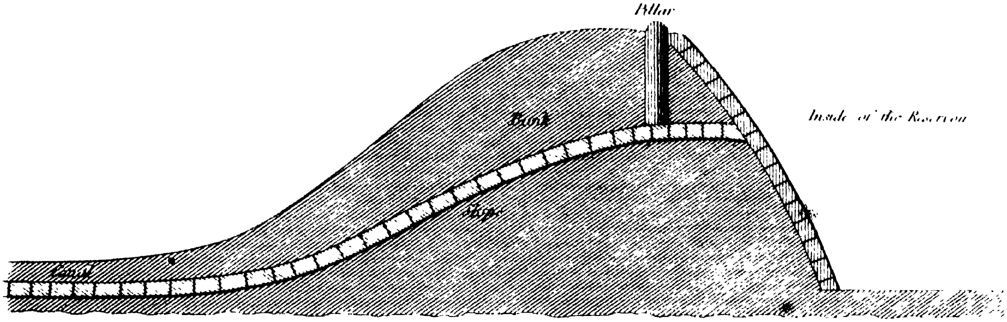
Reservoirs for irrigating the rice-lands.

24th *April.*—I set out early, and soon arrived at *Saymbrumbacum* tank, which is of great extent. It has not been formed by digging, like those in *Bengal;* but by shutting up, with an artificial bank, an opening between two natural ridges of ground. The sheet of water is said to be seven or eight miles in length, and three in width; and in the dry season is let out in small streams, as wanted for cultivation. In the rainy season it receives a supply of water from the river *Chir-nadi,* and from several small streams that are collected by a canal. As at times the water overflows, and would break down the bank by falling over it, and sapping its foundations, the natives in different places construct what they call

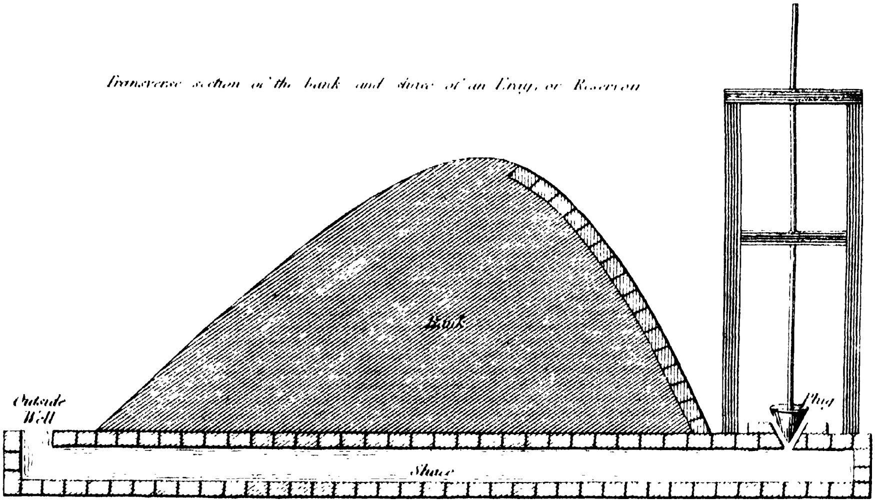
CHAPTER I. *Codies*, or sluices of stone. These are twenty or thirty feet wide, and are lower by some feet than the other parts of the bank. On the surface, they are strongly fortified by large stones placed in a sloping direction; so that the water rushes over without undermining the bank, and is conveyed away from the fields by a canal. This is a matter of the utmost importance; for there are instances where, the banks of these large tanks having given way, whole villages have been destroyed by the torrent. In order, however, that when there is plenty of rain, the tank may be completely filled, a row of stone pillars is placed on the top of the sluice; and, on the water rising to a level with their base, a temporary wall is formed of mud, sticks, and straw, placed between the pillars, so as to confine the water till it rises as high as the top of the bank. People watch this night and day, in order to break down the temporary bank, should any additional rain endanger the whole. The water is let out, to supply the fields, by a sluice lined with cut stone, or bricks, and placed under the bank, on a level with the country. The inner end of this sluice is covered by a flat stone, in which is cut a circular opening, that can be shut or opened by a plug fixed to a bamboo, and secured in its place by two pillars of stone, which rise above the level of the water. The accompanying sketches (Plate I.) will assist the reader to understand the foregoing description. The proper name for a tank of this kind, in the *Tamul* language, is *Eray*. *Saymbrumbacum* tank is said to be sufficient to supply with water the lands of thirty-two villages (should the rains fail) for eighteen months. In these villages, it is said, there are five thousand persons employed in agriculture. In a country liable to famine from want of rain, a reservoir, such as this, is of inestimable value.

Mr. Place. The late collector, Mr. Place, although he augmented the revenue considerably, by the repairs made on this tank during his administration, gave great satisfaction to the inhabitants. Another of Mr. Place's measures seems to have been very well judged. He

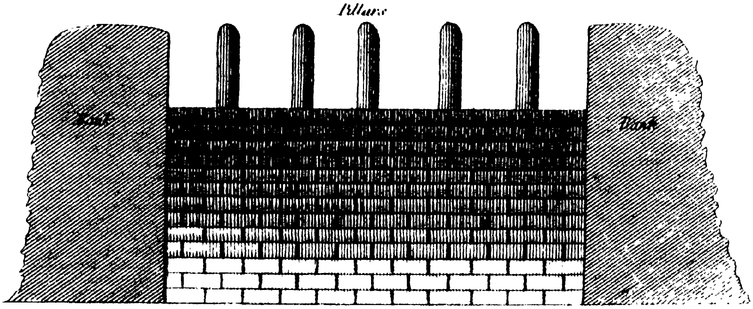
Transverse section of the bank of a Reservoir at the Cody.



Transverse section of the bank and sluice of an Eray, or Reservoir



View of the Cody of a reservoir



Slope secured by stones

caused each village to be surrounded by a hedge of *Bamboos*, with two small towers at each gate. By this measure, in case of any invasion, small parties of plundering cavalry may be kept off, and a great quantity of that most valuable plant the *bamboo* will in time be raised. At present it is brought from the neighbourhood of *Tripetty*, and sells three-fold dearer than at *Calcutta*: for from ten to sixteen *Bamboos* cost here a *Pagoda*, or 7*s*. 4¼*d*. *Bamboo hedges.*

The remaining part of my journey to *Sri Permaturu* tank was along the high grounds that bound it, and the *Saymbrumbacum* reservoir on the south. The land is no where so steep as to prevent the use of the plough; but in most places the soil is very indifferent. The rocks, or large detached masses of granite, project in many fields; and almost every where the country is overrun with low prickly bushes, such as the *Rhamnus circumscissus* of *Linnæus*, *Rhamnus scandens* of *Roxburgh*, *Paulinia Asiatica*, and *Monetia Barlerioides*. Except in a few fields, which in the rainy season are sown with *Ragy (Cynosurus corocanus)*, and other *dry grains*, there is here no cultivation; and I am assured by the natives, that in most places the crop would not be worth the seed. It appears too dry for any useful purpose, except giving a scanty pasture. Perhaps some forest trees might be planted on it with advantage, such as the *Gurgions* of *Bengal*, and the *Lagerstromia reginæ*. The *Palmira* thrives on it without trouble; but the produce is so cheap and abundant, from those which spring forth almost spontaneously, that, I am assured, the planting them on a large scale would not be profitable. The wild date *(Elate sylvestris)* is in a similar predicament. Appearance of the country.

The *Tári*, or fermented juice, and the *Jagory*, or inspissated juice of the *Palmira* tree *(Borassus flabelliformis)*, are in this country more esteemed, than those of the wild date, which is contrary to the opinion of the *Bengalese*. The people of the *Carnatic* allege, that the produce of the latter is very heating. They pretend to be very moderate in the use of the *Tári*, but consume much of the *Jagory*. *Borassus flabelliformis.*

CHAPTER I.

It sells in the country for 30 *Vees*, a *Pagoda*, or about 9*s.* 5*d.* a hundred-weight. Could it be converted into either a palatable spirituous liquor, or sugar, the barren plains of the *Carnatic* might be rendered productive. The former appears not to be improbable, and seems to be an object worth trying. If it should answer, the whole of the grain distilled in Europe might be saved for food.

Weights.

The proper native weights used in the Company's *Jaghire* are as follows:

10 *Vara hun (Pagodas)*	1 *Polam.*
40 *Polams*	1 *Visay.*
8 *Visay (Vees)*	1 *Manungu*
20 *Manungus (Maunds)*	1 *Baruay.*
20 *Baruays (Candies)*	1 *Gursay*, called by the English *Garse.*

The *Vara hun*, or star *Pagoda*, weighs 52¾ grains; therefore the *Visay* is nearly three pounds avoirdupois; and the *Garse* nearly 1205 lbs.

Land Measures.

The land measure of the *Jaghire* is as follows: 24 *Adies* square = 1 *Culy*; 100 *Culies* = 1 *Canay*. Out of what is called charity, however, the *Culy* is in fact a *Bamboo* twenty-six *Adies*, or twenty-two feet eight inches in length; the *Ady*, or *Malabar* foot, is therefore $10\frac{46}{100}$ inches nearly; and the customary *Canay* contains 51,375 square feet, or $1\frac{18}{100}$ acres nearly; while the proper *Canay* would only contain 43,778 square feet.

Tank at *Sri Permaturu.*

The tank at *Sri Permaturu* is much inferior to the *Saymbrumbacum* reservoir, and serves only to water the ground of one village; but that has very extensive possessions. It is said to contain 1812 *Canays*, or 2137 acres of rice lands; 370 *Canays*, or 436 acres of ground fit for the cultivation of dry grains; and a large extent of pasture, which may be compared to the moors of Scotland, but is in general still more barren.

Abundance of milk.

A native of *Bengal*, who accompanies me as a painter, is delighted with the plenty of milk and *Dhui* in this part of the country.

The *Dhui*, or sour curds, is made of buffalo's milk; and is much superior, he says, to that of *Calcutta*, and considerably cheaper. On account of the comparatively high value of provisions, he has hitherto been rather depressed in spirits.

Asses.

Throughout the *Carnatic* the ass is a very common animal. The breed is as small as in *Bengal;* but there is a singular variety among them in their colour; some are of the usual ash colour, whilst others are almost black, in which case the cross on their shoulders disappears. Milk-white asses are also to be found, but they are rare. These are not varieties as to species; for black individuals have sometimes ash-coloured colts, and, on the contrary, black colts are sometimes produced by ash-coloured dams. They are kept by five classes of people, who are all of low cast, for the higher ranks disdain the use of an animal so impure. The ass is kept, 1st. by washermen, called *Venar*; 2d. by a people called *Caravar*, that carry salt from the sea-coast to the interior parts of the country; 3d. by tinkers, called *Cunnar*, who go up and down selling brass utensils; 4th. by people called *Vaylacarar*, who sell the glass rings worn on the wrists by the women of this country; lastly, by a wretched kind of people called *Chensu Carir.*

Chensu Carir.

I have as yet obtained but an imperfect account of this tribe. They are said to have neither house nor cultivation; but catch birds and game, part of which they sell for rice. One common article of their food is the white ant, or *Termes.* They travel about from place to place, conveying their baggage and children on asses. Every man has also a cow, instructed like a stalking horse, by means of which he approaches his game, and shoots it with arrows.

The *Chensu Carir*, who preserve their native manners, and never come among the villages, are said to speak an unintelligible jargon, and have no clothing but the leaves of trees. Those, who occasionally wander about in the cultivated country, understand many *Telinga* words, and wear a small slip of cloth to cover their nakedness.

CHAPTER I.

Appearance of the country.

April 25th.—Early in the morning I went from *Sri Permaturu* to an inn, or *Choultry*, erected by *Vira Permal Pillay*, who was *Dubash* to Sir Charles Oakley. The country is high and barren, like that eastward of *Sri Permaturu*, but it has more *Palmira* trees, and in the neighbourhood of several tanks have been planted tamarind, *Pipal (Ficus religiosa)*, *Banyan (Ficus indica)*, and mast trees *(Uvaria altissima)*, all of which thrive well, if they are watered for two or three years after being planted. The only trees that grow spontaneously are, the *Melia azadirachta*, and the *Robinia mitis;* the last of which flourishes both on the arid hills of the *Carnatic*, and on the muddy banks of the *Ganges*. Very little of this soil, at the usual rent, will repay the expence of cultivation; and in the present state of population it perhaps would not be proper to let it low, as by that means useful labourers might be taken away from more valuable lands. The same reason prevents the fields near the inn from being cultivated. They are level, but too poor to produce rice. The inhabitants would willingly bring them into cultivation for *dry grains*, were they allowed the two first years free of rent: but then part of the rice fields must remain uncultivated.

Water.

The only good water in this neighbourhood is the rain preserved in *Tanks*. That, which is found in wells, is by the natives called salt, although the quantity of muriate of soda contained in it is very small.

Oils used in the *Jaghire*.

The oil chiefly used here, both for food and unguent, is that of *Sesamum*, by the English called *Gingeli*, or sweet oil; a few individuals use the oil of the cocoa-nut. At *Madras* this last is much employed for the lamp; but in the country the natives make other oils serve for this purpose.

The oils used in the Company's *Jaghire*, or district immediately surrounding *Madras*, are the following:

Taynga any, oil of the cocoa-nut.

Nulla any, oil of the sesamum.

CHAPTER I.

Velas, or *amanucky any*, oil of the *Ricinus Palma Christi*. It is the common lamp oil which the natives use.

Cat amanucky any, oil of the *Jatropha curcas;* used for the lamp only.

Mulu any, oil of *argemone* seed, also for the lamp.

Illepen any, oil of the *Bassia longifolia;* used for frying cakes made of rice flour and *Jagory*.

Badaga any, oil of black and white mustard; brought from the interior parts of the country.

Vaypa any, oil of the seeds of the *Melia azadirachta*. About an ounce of this is given to every woman, immediately after she is delivered of a child. It is used also for the lamp.

Veleri very any, oil of cucumber seed; used both in cookery and for the lamp.

Tomute very any, oil of the seed of the *Cucumis colocynthis, L.* Lamp oil.

Penny coty any, oil of the *Calophyllum Inophyllum;* used also for the lamp.

Cossumba any, oil of the seeds of the *Carthamus tinctorius*.

Botanical terms in the *Tamul* language.

In the *Tamul* language there are many good botanical terms, —for instance:

Maram, a tree, *Arbor*.

Chery, a shrub, *Frutex*.

Cody, a climber, *Planta volubilis*.

Shudy, an herb, *Planta herbacea*.

Very, small seed, many of which are contained in a common fruit.

Coty, a seed, of which one only is contained in each fruit.

Palmira tree, or *Borassus*.

The people, who make *Jagory* from palm trees, follow no other profession. An individual of this profession in the *Tamul* language is called *Shanan;* but collectively the cast is called *Shanar*. The *Shanan* mounts the *Palmira* tree morning and evening, in order to collect the exuded juice, which through the day he and his family

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boil down into *Jagory*. The tree produces at all seasons. One man can take care of 200 trees: from which, according to their account, he can extract annually 20 *Manugu*, or about 482 pounds of *Jagory*, worth at this place, 6 *Pagodas*; which, at the usual exchange, is £2. 8*s*. or rather more than eleven shillings the cwt. Besides, the *Shanan* daily sells one or two *Fanams'* worth of *Tári*. According to this account, the produce of two hundred *Palmira* trees would be

Jagory - - - - -	*Pagodas*	6	0
Tári at 1½ *Fanam* daily - - - -		15	7½
		21	7½
Deduct rent at 2 *Fanams* a tree - -		11	4
Profit - -	*Pagodas*	10	3½

I suspect, that by this account the produce is under-rated. If it were true, I can hardly see, how the *Shanan* could maintain a family in a country where provisions are by no means cheap.

Choultry of *Vira Permal.*

The inn, *Choultry*, or *Chaturam*, of *Vira Permal Pillay* consists of two square courts enclosed by low buildings, which are covered with a tiled roof, and divided into small apartments for the accommodation of travellers. The buildings on the outside are surrounded by a colonnade, and are constructed of well cut, whitish, granite, brought from the distance of twenty miles. Although said to have cost 15,000 *Pagodas*, or £5515. 8*s*. 1*d*. they are very mean structures.

Appearance of the country.

April 26th.—In the morning I went from *Vira Permal's Choultry*, to the greater *Conjeveram*, called by the natives, *Kunji*. The country is in general level, but the soil is wretched. It consists chiefly of a coarse sand, seemingly deriving its origin from decomposed granite, and at this season of the year is almost destitute of vegetable covering; nor is it perhaps capable of being ever converted to use. Some spots possess a tolerable soil, and in these

have been formed rice fields, that in the rainy season produce a crop, but at present they look quite desert. Near *Conjeveram* many of the fields, receiving a supply of water from a large reservoir on the north side of the town, were covered with a thriving crop of rice, which displayed a verdure highly refreshing to the eye.

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Fine tank.

In one of the most desert places of the country, a very fine tank has been dug by a *Dewan* of the late *Mahomed Aly*. It is square, and lined all round with stones of cut granite, which descend to the bottom in steps. The water is said to be very deep. At two of the sides of this tank are *Choultries*, built also of cut granite. Each consists of a room divided by two rows of pillars, that support a flat roof consisting of long stones. This apartment, which is shut up on three sides by a wall, and entirely open in front, is surrounded by a colonnade, or *veranda*, which in front is double. The pillars are very rude and inelegant, but are covered with figures, in basso relievo, of the *Hindu* deities, of fishes, and of serpents..

Different kinds of *Choultries*.

It must be observed, that there are two distinct kinds of buildings confounded by Europeans under the common name *Choultry*.

Chaturam, or Inn.

The first is that called by the natives *Chaturam*, and built for the accommodation of travellers. These, like that of *Vira Permal Pillay*, have in general pent roofs, and commonly are built in form of a square enclosing a court in the centre.

Mandapam.

The other kind, like those here, are properly built for the reception of images, when these are carried in procession; although, when not occupied by the idols, travellers of all descriptions may take up their quarters in them. These have flat roofs, and consist of one apartment only, and by the natives are called *Mandapam*.

Different kinds of tanks.

The inhabitants here distinguish also two kinds of tanks.

Eray.

The first is the *Eray*, which is formed by throwing a mound, or bank, across a valley, or hollow ground; so that the rain water

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collects in the upper part of the valley, and is let out on the lower part by sluices, for the purposes of cultivation.

Culam.

The other kind of tank is the *Culam,* which is formed by digging out the earth; and is destined for supplying the inhabitants with water for domestic purposes. In this country the *Culams* are very frequently lined on all the four sides, with cut stone, and are the most elegant works of the natives. By making tanks and *choultries,* the wealthy *Hindus* endeavour to procure a lasting good name; and they certainly deserve it, as the sums they expend in this way, are very considerable, and the utility of the works is very great.

Natives.

In passing through the Company's *Jaghire* I have found very little inclination among the natives to oblige a European traveller. It appears to me, that their condition is better than that of the people in *Bengal;* but this is entirely contrary to the opinion of my painter. He has no doubt better opportunities than I can have of knowing the truth, the houses of the natives in both countries being inaccessible to a European. I suspect, however, that he is not exempt from prejudice in favour of his native land.

Conjeveram, or *Kunji.*

The town of *Conjeveram* is of considerable size, and very regularly built; but it appears to be by no means populous, as many of the lots for building are unoccupied, and none of the houses are more than one story high. The streets are tolerably wide and clean, and cross one another at right angles. On each side is a row of coco-nut trees, enclosed by a small mud wall, painted vertically with red and white stripes.

The houses have mud walls, and are roofed with tiles. Each is built in the form of a square with a small court in the centre. They certainly appear to be much more comfortable than the houses in the country towns in *Bengal.* Most of them are inhabited by the *Bráhmans* belonging to two large temples, that are dedicated to *Iswara,* and to his wife *Cámachuma.* Of these *Bráhmans* there are one hundred families; a hundred dancing girls are kept for the

honour of the deities, and the amusement of their votaries; and any familiarity between these girls and an infidel would occasion scandal. About three miles off, at the lesser *Conjeveram*, is another grand temple dedicated to *Vishnu*, who has here a *Mandapam*, for his reception at the two visits, which he makes in the year to *Iswara*. *Siva* returns the visit once a year only. At these visits the worshippers of the two gods, who are of different sects, are very apt to fall into disputes, occasioning abusive language, and followed by violence; so that the collectors have sometimes been obliged to have recourse to the fear of the bayonet, to prevent the controversy from producing bad effects.

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Temple.

I have no occasion to describe the *Covils*, or *Pagodas*, that having already been done with sufficient accuracy. I shall only remark, that they are great stone buildings, very clumsily executed both in their joinings, and carvings, and totally devoid of elegance or grandeur, although they are wonderfully crowded with what are meant as ornaments. The *Rat'hs*, *Tær*, or chariots, on which the images of the gods are carried in procession, are much superior to those I have seen in *Bengal*. There are here three *Tær*, one for *Iswara*, a second for his wife, and a third for his son *Ganésra*. In *Bengal*, the images of *Vishnu* only, and of this family, are conveyed in *Rat'hs*; *Mahádéva*, or *Iswara*, is never carried in procession.

Mosque.

At *Kunji* there is a small mosque of very neat workmanship. The *Hindoos* say, that it was originally a *Covil*, or *Pagoda*; but if it has been such, great alterations have been made on it for the better.

Sects of *Bráhmans* in the south.

The divisions of the *Bráhmans* here, are different from those found in *Bengal*.

Smartal.

The most numerous class here, and which comprehends about one half of all the *Bráhmans* in the Lower *Carnatic*, is called the *Smartal* sect, and its members are followers of *Sankara Achárya*. They are commonly said to be of the sect of *Siva*; but they consider *Brahmá*, *Vishnu*, and *Iswara*, to be the same god, assuming different persons as the creator, preserver, and destroyer of the universe. They

CHAPTER I. consider their souls as being portions of the divinity, and do not believe in transmigration as a punishment for sin. They are readily distinguished by three horizontal stripes on the forehead, made with the ashes of cow-dung.

Sri Vaishnavum. The next most numerous sect of the *Bráhmans* here, are the followers of *Ráma Anuja Achárya,* who form about three tenths of the whole. They are called *Sri Vaishnavum* and *A'ayngar,* and may readily be known by three vertical marks on the forehead, connected by a common line above the nose, and formed of a white clay. They abhor *Iswara,* calling him the chief of the *Rákshasa,* or devils, and worship only *Vishnu,* and the gods of his family. They form two sects; the *Wadagalay,* who believe in transmigration, and the *Tangalay,* who do not.

Madual. The *Madual* form the remaining two tenths of the *Bráhmans.* These use the vertical marks on the forehead, which are appropriate to the followers of *Vishnu;* but they worship *Siva* also; they believe in the generation of the gods in a literal sense, thinking *Vishnu* to be the father of *Brahmá,* and *Brahmá* to be the father of *Siva.*

All these sects admit the authority of the same *Puráns;* but each sect explains some obscure passages so as to confirm its own doctrines.

Each sect of *Bráhmans* has here a number of followers, in proportion nearly to its own comparative strength. This, I am told, is not the case in *Bengal,* where the sect of *Iswara* or *Mahadáva* prevails among the *Bráhmans,* while that of *Vishnu* is the most common among the vulgar.

Various names for forts. 27th *April.*—In the morning I went to *Oulur Sát-ghadam,* which is a *Choultry,* or inn, with hardly any houses in its neighbourhood; but it is remarkable for having formerly had seven hill-forts in its vicinity; and from this circumstance it derives its appellation, *Sát-ghadam.* In the *Decany* dialect of the Musulman language, *Ghadam* signifies a fortress situated on a hill, while *Kilah* is applied to one built on a plain. In the *Sanscrit* language, *Patanam* or *Patana* is

analogous with *Kilah*, and *Durga*, or *Durgam*, is analogous with *Ghadam*. In the *Tamul* language a fort of either kind is called *Cotay*.

Another kind of *Choultry*, called *Tany Pundal*.

Besides the *Chaturam* and *Mandapam*, there is another kind of building, which by Europeans is called *Choultry*; in the *Tamul* language it is called *Tany Pundal*, or water shed. These are small buildings, where weary travellers may enjoy a temporary repose in the shade, and obtain a draught of water or milk. In some of the inns or *Chaturams*, provisions are sold; in others, they are distributed gratis, at least to *Bráhmans* or other religious mendicants, as is the case in the *Choubaries* of *Bengal*.

Titles derived from public works.

When a man erects a building of any of these kinds, the natives add its name to his, as a title of honour; thus any person speaking of *Vira Permal*, would call him *Vira Permal Chaturam*. Others derive a similar title from having dug a *Culam*, or constructed an *Eray*.

Appearance of the country in the *Jaghire*.

Soon after leaving *Conjeveram*, I found the country again a desert, and it continues so till near *Damerlu*, the last village in the *Jaghire*. From my having passed over such a great proportion of bad land, on my way from *Madras*, it must not be concluded, that the whole country is similar. Dry, hard, and elevated ground, where little expense is bestowed on keeping the roads in repair, being most favourable for highways, the traveller of course meets with a greater proportion of that description than of any other. Between *Damerlu*, and *Oulur*, a canal coming from the *Palar*, waters much valuable rice land. At *Oulur* the soil is good, but where I encamped is fit only for dry grains; and at present its surface is wholly a brown dust, enlivened alone by the bushes and trees which, from the slovenliness of the cultivators, are scattered about in the best fields.

Irrigation by means of the *Yatam*, or *Pacota*.

In one place I saw people employed in watering a rice field with the *Yatam*, or *Pacota*, as it is called by the English. When the water of a tank is expended before the rice of the fields watered

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by it ripens, the inhabitants must either allow their crop to perish, or use the *Yatam*. One *Canay* of ground ($1\frac{32}{100}$ acre) requires the constant labour of four men to supply it with water for the cultivation of rice, The same number of men are able to water three *Canays* of garden ground, which requires a comparatively small supply ; a deduction of rent is generally allowed, when the cultivator is reduced to the necessity of watering by machinery.

Appearance of the country.

28th *April.*—In the morning I made a long journey to *Arcot.* From *Oulur* to *Kávary-pák*, the barren ridge on which the road leads, is very narrow; and the country, being abundantly supplied with water from the *Kávary-pák* tank, has a fertile delightful appearance; and with its distant hills, verdant fields, and running streams, would afford a most beautiful prospect, were it somewhat better wooded. The great *Eray*, or tank, is about eight miles long and three broad, and fertilizes a considerable extent of country. I never viewed a public work with more satisfaction, a work that supplies a great body of people with every comfort which their moral situation will permit them to enjoy. *Kávary-pák* is a large but dirty village, with a stone mosque in its centre. The fort by which it was protected, is also built of stone, but is now ruinous.

After passing *Kávary-pák*, I found the barren ridge more extensive, reaching almost from the *Palar* to the northern hills, and in most places consisting of immense beds of granite, or of that rock decomposed into harsh coarse sand. The whole country is almost destitute of verdure, but a little withered grass affords sustenance to a few wretched sheep. Other parts have somewhat of a better soil, and in the rainy season may produce some of the dry grains; several reservoirs have been formed in the waste, the water of which produces crops in a few narrow strips of land chiefly near the river. The bed of the river *Palar* at *Arcot*, where we crossed it, is above half a mile wide, but at present is quite a dry loose sand, except in two narrow channels, containing a stream not sufficient to turn a mill.

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Arcot.

Arcot, or *Arrucate*, is the nominal capital of the *Carnatic páyin ghát*, (*Carnatic* below the Passes) as the Mussulmans and English call the dominions of the *Nabob*. He maintains a garrison of his own troops in the fort, which is pretty large, but not in good repair. The music of his *Nabut*, or state band, is much superior to any thing I have ever heard among the natives, and is not much harsher than our clarionet. His brother-in-law, who manages this part of the country, resides near the fort, in a good house belonging to the *Nabob*.

The town surrounds the glacis on all sides, and is extensive. The houses are as good as in the towns of the *Jaghire*. The inhabitants speak the *Decany* dialect of the Mussulman language, which we call Moors or *Hindustany*. They took advantage of us as strangers, and for every supply we procured, demanded three times the usual price. At this place coarse cotton cloth is made. It seems to be cheaper than in the *Jaghire*, but dearer than in *Bengal*.

Roads, and manner of travelling.

From *Madras* to *Kávery pák*, the road is tolerably good. From *Kávery pák* to *Arcot*, a wheel carriage could not easily pass. Many of the rich natives travel in bullock coaches, like those in *Calcutta*, called *Chaycra*. Near *Arcot*, I met the Mussulman women riding on bullocks, and entirely wrapt up in white veils, so as to conceal both features and shape.

Hills of granite.

The heat on the glacis of the fort, where I encamped, was intense. The hills in this vicinity are the most barren I have ever seen, those even of *St. Jago* in the *Cape de Verd* islands not excepted. They appear to be composed of the same granite, that abounds in the elevated barren grounds, on which the road from *Madras* is conducted. They seem to be undergoing a rapid decay, and will probably continue to do so, till they are reduced to nearly a level with the circumjacent plain, when the decomposed parts, no longer rolling off, will cover them with a bed of sand, and prevent them from farther decay, as is now the case in the waste lands already mentioned. In many parts of the vallies, formed by these hills, is

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found *Chunam,* or lime-stone nodules, which in *Bengal* is called *Congcar.*

Face of the country.

29th *April.*—The country between *Arcot* and the western hills contains some good ground, some that serves for gardens, and *dry grains,* and some that is barren, consisting of granite covered with beds of sand.

The road leading to *Vellore* is conducted along the foot of the hills, which bound the *Palar* valley on the south, and is formed on the rocky basis of these hills, and on the sand and fragments, that have fallen from them. A greater verdure however prevails here, than any I have seen in the *Carnatic,* owing probably to a subterraneous supply of water; for on the whole way there is not a spring visible. This ground at the foot of the hills is in some places pasture, and in others is overgrown with trees and bushes, especially with the wild date, or *Elate Sylvestris,* which thrives very well, but here is considered as useless. There are also many *Palmira* trees, from which *Tári* is extracted. The lower part of the valley, near the river, is very good land, and looks well, the greater part of it being verdant with the second crop of rice. The houses and villages by the way are very miserable.

Vellore.

30th *April.*—I remained at *Vellore* in order to give my people rest. The present fort is large and beautiful; and having been chosen for the residence of the family of the late *Sultán* of *Mysore,* is strongly garrisoned by English forces. The town, which belongs to the *Nabob,* is pretty large, and well built after the *Hindu* fashion. Above it are three small forts, which occupy the summits of a hill that overlooks the town, but one of them only has a supply of water. The fortifications are said to have been erected by the *Canarese* monarchs.

Brdhmans.

The greater part of the *Bráhmans* in the lower *Carnatic* follow secular professions. They almost entirely fill the different offices in the collection of the revenue, and administration of justice; and

they are exclusively employed as *Hircaras*, that is, guides or messengers, and as the keepers of inns or *Choultries*. Much of the land is rented by them; but, like the Jews, they seldom put their hand to actual labour, and on no account will they hold the plough. Their farms they chiefly cultivate by slaves of the inferiour casts, called *Súdra*, and *Panchum Bundum*.

Impure tribes of *Hindus* called *Panchum Bundum*.

The *Panchum Bundum* are by far the most hardy and laborious people of the country, but the greater part of them are slaves. So sensible of their value was *Hyder*, that in his incursions it was these chiefly, whom he endeavoured to carry away. He settled them in many districts as farmers, and would not suffer them to be called by their proper name, which is considered opprobrious; but ordered, that they should be called cultivators. The *Panchum Bundum* consist of four tribes; the *Parriar*, the *Baluan*, the *Shecliar*, and the *Toti*. The *Shecliars* dress hides; and from among the *Toti* is chosen a particular class of village officers.

Cultivators.

There are a few Mussulman farmers, who possess slaves; but the most numerous class is composed of the different tribes of the *Súdra* cast. Some of these possess slaves, but many of them cultivate their farms with their own hands.

Markets.

In this *Carnatic payin ghát*, or *Carnatic* below the mountains, there are no fairs like the *Hauts* of *Bengal;* but the shopkeepers purchase the articles in demand from the farmers and manufacturers, and retail them daily in the *Bazars* or towns. Milk and its preparations are commonly sold by women, who sit by the road side.

Face of the country.

1st *May*.—I went from *Vellore* to *Paligonda*. The valley is in general very fine, much of it having water for two crops of rice; some part however is covered with rocks of granite. The villages are very poor; and the two towns, *Verimchepurum*, and *Paligonda* are full of ruins; at each of them is a considerable temple; that of *Paligonda* is within the remains of a fort. The name of the place is derived from a *Tamul* word, which signifies sleeping. It arises from

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the image in the temple, which represents *Ranganáth*, one of the forms of *Vishnu*, in a sleeping posture.

Casts.

A procession, that took place to-day at *Paligonda*, gave me an opportunity of learning, that only the three pure casts of *Bráhmans*, *Vaishyas*, and *Súdra*, are allowed to attend on such occasions. The fourth pure cast (the second in rank), the *Kshatriyas*, are considered by all the *Bráhmans* here, as having been for many centuries quite extinct. The *Parriar*, and other impure tribes, composing what are here called the *Panchum Bundum*, would be beaten, were they to attempt joining in a procession of any of the gods of the *Bráhmans*, or entering any of their temples. The *Bráhmans* indeed despise those poor people so much, that they will give them no religious advice; nor perform for them any religious ceremony; and, what is still more extraordinary, will not even receive money from them as charity. The *Parriars* have among themselves a kind of priests, named *Velluan*, who possess books in the *Tamul* language. They have also small temples, in which the only image is said to represent the head of the mother of *Parasu Ráma Avatár*. This, according to the legend, was taken up by the *Parriars*, when it had been cut off by her son.

Different kinds of *Bráhmans*.

I have already mentioned the three grand sects prevailing among the *Bráhmans* of this country, and which are said to prevail also over all the five nations of *Bráhmans*, called collectively *Pansh Dravada*, who occupy the southern parts of *India*. There are, however, many other divisions among these *Bráhmans*, arising from their various occupations.

The proper duty of a *Bráhman* is meditation on things divine, and the proper manner of his procuring a subsistence is by begging *(Bhikshá)*. This mode of living is considered as very agreeable to the gods; and all industry is deemed derogatory to the rank of a man, and more especially to that of a *Bráhman*. The lower classes of society, however, in this degenerate age, not being sufficiently charitable, nor quite so willing to part with their money,

as the noble cast of *Bráhmans* could wish, many of that sacred order have been obliged to betake themselves to what they consider as unworthy employments, such as being governors and judges of cities, collectors of revenue, and accomptants; nay some even condescend to cultivate the earth by means of slaves. Hence arises the distinction of *Bráhmans* into *Vaidika* and *Lókika*, or *Lovadica;* the former of whom follow the proper duties of the cast, while the *Lókika* debase themselves by dedicating their labours to worldly affairs. The diversity of employment, however, does not create an absolute distinction of cast; the daughter of a *Vaidika Bráhman* may marry a *Lókika*, and the son of a *Lókika* may betake himself to the occupations of a *Vaidika Bráhman;* but instances of either circumstance are not common. It is however not so unusual for a poor *Vaidika*, to be tempted to give his daughter to a wealthy *Lókika Bráhman;* as for the son of a *Lókika Bráhman* to acquire the character of a pure *Vaidika*. He is always considered as a new man; and several generations, devoted to study and mortification, would be required to wash away the stain of ignoble birth, before the merits or learning of a *Lókika* family could enable them to procure a comfortable subsistence by charity.

The *Bráhmans* are considered as the priests of the *Hindus;* yet there are none, even of the lowest among the *Lókika*, who would intermarry with the families of the *Bráhmans* that officiate in the temples of *Vishnu* and *Siva:* and in this country no *Bráhman* officiates in any of the temples of the inferior gods, whose altars are stained with blood.

The highest among the *Bráhmans* are certain *Vaidika*, who by more than usual mortification attain a large proportion of divine favour. They cut off their hair; dress in a yellow or red cloth; eat but once a day; abstain entirely from women; and, relinquishing all the domestic enjoyments of society, live in *Pagodas*, or *Matams*, that is to say convents, where they dedicate their time entirely to devotion, and the instruction of those who are less pious, and who

CHAPTER I. follow them as disciples. A *Bráhman* of this kind is called a *Sannyási*, and must be a man of learning, that is to say, must be able to read *Sanscrit*, and be acquainted with the dogmas of his particular sect. The number of *Bráhman Sannyásis* is very small, and is chiefly confined to those, who are *Gurus*, *Swamalus*, or bishops of the different sects, and who, in every thing relating to religion and cast, have a jurisdiction over all their inferiors. They also perform certain ceremonies, such as *Upadésa*, and *Chicranticum*, which may be considered as analogous to the Confirmation granted by our prelates. They are supported entirely by the contributions of their disciples; but these are so burthensome, that a *Guru* seldom continues long in one place; for the contributions even of *Madras* are not equal to supply the wants of a *Swamalu* for more than one or two months. A hundred *Pagodas* a day, £36. 15. 5. is as little, as can be decently offered to such a personage. The *Raja* of *Tanjore* is said to give his *Guru* 250 *Pagodas* a day (£91. 18. 6½.), when that personage honours him with a visit. The *Gurus* travel in great state, with elephants, horses, *Palankeens*, and an immense train of disciples, the least of whom considers himself as highly elevated above mankind by his sanctity. They generally travel at night, in order to avoid their Mussulman or European conquerors, who would not show them that veneration, or rather adoration, to which they consider themselves entitled; and they have therefore been seldom seen by travellers. On the approach of a *Guru* to any place, every inhabitant of pure birth must go to meet him; the lower classes are not admitted to his presence. The *Guru*, on being conducted to the principal temple, bestows *Upadésa*, or *Chicranticum*, on such as have not received these ceremonies, and distributes holy water. He then inquires into matters of contention, or transgressions against the rules of cast; and having settled, or punished these, hears his disciples and other learned men dispute on theological subjects. This is the grand field for acquiring reputation among the *Bráhmans*. These disputations are said to be very similar to those, which

were common among the doctors of the Romish church seven or eight hundred years ago; and in fact a strong resemblance will be found between the present state of *Hindu* knowledge, and that which then prevailed in Europe.

The contributions for the support of the *Guru* are made chiefly by the rich *Bráhmans*, especially by the *Lókika.* Small donations offered by a *Súdra* would be rejected with scorn, as being proper only for the *Bráhman* who performs ceremonies for him; but should a *Sudra* offer a thousand or two thousand *Pagodas* it would be received. As the *Guru* is supposed to be entirely weaned from the pleasures of the world, the whole of these contributions ought to be expended in charity, that is to say, in the support of buildings and men dedicated to the honour or service of the gods.

Irrigation from the *Palar.*

At *Paligonda,* the river *Palar* is considerably diminished in size, from what it is at *Arcot;* but at this season its channel is occupied entirely by dry sand. The people, however, procure water from it, by digging canals in the sand six or seven feet deep. These canals transverse the channel diagonally, and collect a gentle stream of pure water about a foot deep, and six feet wide; this by other canals is conveyed through the country to water the fields, and renders the valley of *Vellore* one of the finest tracts in the *Carnatic.*

Appearance of the country.

2d *May.*—In the morning I went fifteen miles to *Sátghadam.* I first crossed the *Palar,* and proceeded up its northern bank till I came to the *Camundala.* Following the course of this river, I came to *Gurietum,* a pretty large town, about five miles N. N. W. from *Paligonda.* Part of it is on either side of the river, and that on the eastern side is guarded by a mud fort. Soon after, I turned towards the left from the *Camundala,* and entered a narrow valley leading west. So far was a fine valley, like that near *Vellore,* and well watered by canals, cut from the *Palar* and *Camundala.* This last river has water in many parts of its channel; but at this season, it does not afford in any place a quantity sufficient to form a stream on the surface. The narrow valley, by which I proceeded, is watered

CHAPTER I. in its lower part by a reservoir. The head of the valley rises considerably, and consists chiefly of dry fields; towards the upper end some is barren land full of granite. The hills approaching here, a stone wall, with a gateway, marks the boundary of *Sátghadam*. On the north this gate is commanded by a naked rocky hill, irregularly fortified by various walls and castles, after the country fashion. These are called *Sátghadam*, the *Decany* pronunciation of *Sátghur*, or the seven castles. The *Malabar*, or *Tamul* name of the place is *Elamulla Durgam*. The village under the hill, or the *Petta*, is surrounded by a wall, and is pretty considerable in point of space, but it is ruinous. The district belonging to it is extensive, and fertile. It is surrounded on all sides by granite rocks; and in the rainy season, the water of three torrents falls from it into the *Palar* near *Amboor*. The principal cultivation in it, however, is that of dry grains, with some fruit gardens, for which it is celebrated.

Gardens. The *Nabob* has here an extensive garden, which he lets to some *Armenians* at *Madras*. The fruit, especially the oranges, are reckoned the best in the *Carnatic*, and the choicest are sent to the *Nabob*, and to other persons of distinction. This garden is a large piece of ground, thickly planted with a variety of fruit trees; and to the roots of each water is conveyed by separate canals: but the whole is kept in a very slovenly condition. More extensive gardens might be formed here, but the expence of watering them would be considerable.

Weather. Since leaving *Madras*, I have found the weather very hot and dry. The thermometer at noon in my tents, which are well constructed for keeping out the heat, has been from 95° to 98°. In a house it would probably have been two or three degrees lower. The wind has generally been strong; but so arid, and hot, as not to mitigate the effects of the sun, or cool the burning atmosphere.

Curious deception. I am gravely informed by my interpreter, a *Bráhman*, that he has relations, who live by performing a variety of wonderful feats. Among others, they can make a *Mango* stone, in the course of four

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hours, shoot out a small tree a foot high. He maintains, that this is not a deception, but a real art, the manner of doing which is as follows: Take of the kernels of a shrub which is a species of *Vantanea*, a convenient quantity, and grind them between two stones for seven days and seven nights, without ceasing. Then place a sword upright, with its point in a cup. Rub the pulp of the kernel on the blade of the sword, exposed to the sun, and an oil will run down into the cup. Put the oil in a bottle to be preserved for use. In order to perform the experiment, take a ripe *Mango* stone, rub it over with the oil, and place it in a pot of earth properly watered. The young shoot will be immediately formed; but dies soon, that is, whenever it has exhausted the nourishment contained in the kernel. I have seen the experiment performed at *Calcutta*; and know that it is a mere deception.

Ascent of the *Ghats*.

3d *May*.—I went to *Naiekan Eray*, by the *Pedda Naikana Durga* Pass. After crossing the first hill by a very bad road, I descended into a narrow valley, running north and south, and containing two channels, in one of which was a small quantity of clear running water. These two currents uniting, and having joined the streams from *Satghadam*, fall into the *Palar* near *Amboor*. In this valley was encamped an officer, with many pioneers, employed in making a road up the *Ghats*, from *Amboor* to *Pedda Naikana Durga*. The new road is very well formed; but for about half a mile is exceedingly steep, so as to render a noble work of comparatively little value. The mountains of the *Ghats* have not quite so barren an aspect as those to the east; and contain many trees, some of which are fit for timber.

Forests on the *Ghats*.

Specimens of the following were brought to me, as being the most useful trees on the *Ghats* of this place. The names are *Telinga*.

1. *Nara Vaypa*, described by Dr. Roxburgh as a species of *Copaifera*. A black, hard timber, taking a good polish.

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2. *Yegu,* which in my manuscripts I call *Pterocarpus ? Vaynga.* Gives small planks for doors, &c.

3. *Naro, Premna tomentosa Willd.*
Used for beams and posts in the huts of the natives.

4. *Neruddy.*
Serves for both planks and beams.

5. *Muddi.*
The wheels of the immense chariots of the gods are made from this tree.

6. *Topissi, Ulmus integrifolia,* Roxb.
Serves for door-frames, and similar uses.

7. *Tayca, Tectona Robusta.*
In this neighbourhood about a hundred full grown trees might be procured.

8. *Chigry,* a *Mimosa,* which I call *Tuggula.*
Said to be a black, heavy, strong timber.

9. *Tella Malıki* which I call *Bilitalium Farinosum.*
A white wood used for posts in huts.

10. *Wudaga.*
Used by *Tippoo* for stocking firelocks.

11. *Palawaraynu, Nerium tinctorium,* Roxb. MSS.
The timber is sawed into planks; and ploughs, and other implements of agriculture, are made of it. The natives are acquainted with the process for extracting indigo from its leaves.

12. *Devadarum, Erythroxylon Sideroxyloides,* L. M.
A sweet-scented black wood, used by the poor instead of sandal wood.

13. *Bilu, Sweitenia Chloroxylon,* Roxb.
The timber is reckoned of little value by the natives, although it is said to be our satin wood.

14. *Raynu, Rhamnus xylopyrus Koen.*
A strong timber used for posts and beams.

15. *Aree, Bauhinia.*
A strong black timber.
16. *Pedualingee.*
A black wood.
17. *Mimosa Lebec,* L. M.
A white heavy timber.
18. *Tanaca.*
Used for planks and beams.
19. *Vaypachitu, Melia Azadirachta,* Lin.
Used for beams and posts.
20. *Nayla Balasu, Haydarany* of the *Canarese.*
A black wood, that kindles readily, and burns clearly, and therefore is used for torches.

Strata of the *Ghats.*

In ascending the *Ghats,* I had an excellent opportunity of observing the strata, where the rock has been cut away to form the road. The grand component part of these mountains is a granite, consisting of white felspar and quartz, with dark green mica, in a small proportion to the other two ingredients. The particles are angular, and of moderate size. It seems to come near to the Glanitello of the Italians (Waller. Min. II. p. 423), and is an excellent material for building; as it is readily cleft by wedges, and is at the same time strong and durable. Intermixed with this is another stone, in a state of decay, consisting of angular masses of various sizes, divided by fissures, so as to be separable with little difficulty. The sides of the fissures are tarnished, and covered by extraneous matter. This is a stone commonly called a granite in decay, the mica being supposed to have been entirely decomposed, and the felspar to be in the act of decomposition, and to have assumed an arid powdery appearance, while the glassy quartz retains its natural consistence. That the strata in question are in a state of decay, from the numerous fissures in them, I have no doubt; but there are other strata of similar component parts common all over the lower *Carnatic,* especially at *Mahabalipura* (the seven *Pagodas*),

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which are in the most perfect state of preservation, without the smallest mark of decay, and fit for forming the most durable buildings. Mr. Fichtel, who has been so kind as to look over my specimens, and to assist me with his opinion concerning their nature, thinks, that the stone of *Mahabalipura* consists of a mixture of arid and of fat quartz; and, although he calls the stone of the *Ghats* granite, I have no doubt of its component parts being the same with those of the *Mahabalipura* stone.

Both these rocks appear to be stratified; but the strata are wonderfully broken, and confused. In some places they are almost horizontal, in others they are vertical, with all intermediate degrees of inclination. Sometimes the decaying stratum lies above the perfect, and at other times is covered by it. I saw many strata not above three feet wide; while in other masses, of eight or ten feet high, and many long, I could perceive no division.

Immersed in both kinds, I observed many nodules, as large as the head, which were composed of a decaying substance containing much green mica. In other places there are large veins, and beds, containing small rhomboidal masses, of what Mr. Fichtel takes to be a composition of a small proportion of quartz with much iron.

Appearance of the country above the *Ghats*.

The country about *Naiekan Eray* rises into swells, like the land in many parts of England, and is overlooked by the high barren peaks of the *Ghats*, which close the view to the eastward. Among these peaks, the most remarkable is that occupied by *Pedda Naiekana Durga*, or the Great Chief's castle, which, till the overthrow of the late *Sultan*, was a frontier garrison of the *Mysoor* kingdom. It formerly belonged to a *Polygar*, called the *Pedda Naieka*, who was restored by Lord Cornwallis; but obliged again to leave his dominions, after his Lordship granted peace to *Tippoo*. During the remainder of the *Sultan's* reign, he continued to harass the country in nocturnal predatory excursions; but is now quietly waiting for the decision of the British government concerning his fate. The country formerly belonging to his family has, by the partition treaty

Pedda Naiekana Durga.

of 1799, been annexed to the British possessions, and is under the authority of Captain Graham, the collector of *Khistnaghery*.

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Inhabitants.

At *Naiekan Eray*, or the chief's reservoir, the only remains of a village are a ruinous *Choultry*, and a few wretched shops, called a *Bazar*. The houses of the cultivators are scattered about in groups of four or five families. The common language spoken here, as well as in the neighbouring parts of the *Nabob's* dominions, is the *Telinga*, or *Beder* as it is commonly called. The people are infinitely more obliging than those below the *Ghats*, and my servants find here no difficulty in procuring supplies.

Appearance of the country.

4th *May*.—In the morning I went from *Naiekan Eray*, to *Vencataghery*, about nine miles. So far as I can judge by the view, one half of the country has been ploughed; of the half that has never been cultivated, a small part, perhaps about a tenth of the whole, rises into hills too steep for the plough; the remainder is gently swelling ground, like the rest of the country; but the soil is very poor, and covered with copse, having a few large trees intermixed. The whole of the copse land serves for pasture, such as it is; and the bushes supply the natives with fuel for their domestic purposes, for burning limestone, and for smelting iron. The bushes seem also to preserve a moisture in the soil, which it is alledged would improve it, should it ever be determined to extend cultivation; so that I do not think the pasture would be improved by clearing the country; and the loss of fuel, and timber for country uses, that would be sustained by the operation, would be of serious inconvenience.

Iron forges.

About two miles from *Naiekan Eray*, a torrent, in the rainy season, brings down from the hills a quantity of iron ore in the form of black sand, which in the dry season is smelted. The operation is performed by *Malawanlu*, the *Telinga* name for the cast called *Parriar* by the natives of *Madras*. Each forge pays a certain quantity of iron for permission to carry on the work.

Arable lands.

The watered lands receive a good supply from reservoirs, con-

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structured like those below the *Ghats*. The rice now on the fields looks well, but cannot occupy more than a twentieth part of the arable lands. At present the dry fields look very ill, being quite parched up; for the want of water seems to be the predominant feature of the eastern part of the upper *Carnatic*. Were it not that the slovenly cultivation, in use here, leaves a few straggling bushes in the midst of their fields, the whole would be entirely bare, and devoid of vegetation. These lands appear, however, to be perfectly fitted for the English manner of cultivation; and in order to preserve some moisture in the ground, they ought to be enclosed with hedges, and planted with hedge-rows. The *Euphorbium Tirucalli*, common in the country, makes a beautiful fence; and I think it probable, that the mahogany and chesnut would be found to answer in hedge-rows, as they are both natives of hilly countries, and warm climates.

Vencataghery.

Vencataghery was formerly the usual residence of the *Pedda Naieka Polygar*, and the ruins of his fort are still conspicuous. It is built on a rising ground, and consists of various enclosures, surrounded by walls of mud and stone, flanked by towers and bastions, that rise higher and higher as you advance inwards, till you come to the central enclosure, which contained the *Raja's* dwelling. There have been in this place three small temples, two of which are preserved. The remains of this palace do not indicate that it ever possessed any grandeur, few of the rooms being more than seven or eight feet square. The outer enclosures contain much ground formerly occupied by the town, which is now reduced to one street of shops. The houses are much inferiour to those in the *Tamul* villages. They are built of mud, with thatched roofs; but do not surround a square court; nor have they any *Verandah* to keep off the sun or rain. The inhabitants are almost all *Telingas*, or *Gentoos* as the English of *Madras* call this nation.

Minerals.

Near *Vencataghery* also iron is smelted from black sand; and mixed with the soil of different fields, lime-stone, in form of nodules, is

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common. The strata resemble those in the *Ghats*. The white granite is the most prevalent; but the masses of quartz impregnated with iron are much larger, and more perfect. I saw no other rocks: it would however appear, from the stones in the wall of the fort, that the country produces red granite. Near *Vencataghery* I observed the water tinged with an iridescent oily matter, floating on its surface, as is usual in coal countries.

5th *May*.—In the morning I went to *Baydamungulum;* leaving on my right a hill crowned with a fortress, and a temple dedicated to *Seitadeva*. By the way I visited a place to the north of my route, where the natives obtain limestone. I found it to be two small fields, containing what in *Bengal* is called *Congcar*. These fields are distant from each other about three hundred yards, and are situated on a low piece of ground, surrounded by naked rocks of white granite. This low ground is intersected by the channel of a torrent, which at this season is quite dry; and the water of the only spring that I have yet seen in this arid country, passes by the sides of the two calcareous fields. In some parts of these fields the small concretions, of which *Congcar* consists, are found on the surface, mixed with the soil; in others, a foot of soil must be removed, before they are found in any quantity. The natives have never dug deep to ascertain the thickness of the bed. This kind of stone seems to be the *calcareus æquabilis incarnatus* of Wallerius. II. p. 124. Similar beds are said to be scattered all over the country. A few families of *Malawanlu* gain a subsistence by collecting the limestone, by burning it in kilns, and selling the *Chunam*, or quick-lime, for chewing with *betel*.

Culinary salt.

Common salt (*Muriate* of *Soda*) seems to be also very generally diffused over this part of the country. It is found in low wet grounds, contained in a black poor soil, and in *Tippoo's* reign was extracted in considerable quantities. The trade with the *Nabob's* dominions being then entirely contraband, such a bulky article could not be smuggled in quantities sufficient for the consumption, and the

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it to the utmost extremity. It contains an old temple, the roof of which, as an additional defence, has been surrounded by a parapet of mud.

Palar river.

The town stands about three hundred yards west from the *Palar*, which, here, is not above forty feet wide, and at this season contains two or three feet depth of water nearly stagnant. In the rainy season, it fills several fine reservoirs, or tanks, for the use of cultivation.

People.

The people here are a mixture of *Tamuls*, *Telingas*, and *Karnataca*, or *Canarese*, with a good many Mussulmans. They complain, that the *Amildars* of the *Mysore* government take more money from them, than they did in the reign of *Tippoo;* but acknowledge, that they are exempted from the licentiousness of that prince's army, and from the arbitrary exactions usual in his government.

Appearance of the country.

6th *May*.—I went sixteen miles to *Tayculum*. The country in most points resembles that through which I passed yesterday; but I think the proportion of land that has never been cultivated is greater; I should estimate it to be four tenths of the whole. Of this also a greater part consists of high rocky hills. Those towards *Colar* are very extensive; and the last two miles of our road lay between two immense piles of bare granite, gradually crumbling into fragments that roll down into the plain. These hills occupy three fourths of the land that has never been ploughed; the remainder is covered with copse wood, chiefly of the *Mimosa* which I call *Tuggula*, and seems to be capable of cultivation. The proportion of watered land to that of the dry arable fields, seems to be very small, and the supply of water appears not to be plentiful. A considerable quantity of it was occupied by *betel* leaf gardens; and I observed one field under sugar-cane. The nakedness of the country does not proceed from any incapacity in the soil to produce trees; for to-day I observed many that were really fine. The *Tamarind*, *Mango*, *Pipal*, and *Robinia mitis*, thrive well.

Villages.

The villages appear miserable; the houses being entirely hidden

by the walls of the fortifications, which present nothing to the view but a brown dusty mud. The farther we advance into the *Mysore Raja's* dominions, they appear to be kept in better repair.

Part of the country indicated that it had last night been watered by a very heavy rain; for the surface continued to be wet. This had allayed the dust and heat, removed the desert appearance of the land, and showed much of the soil to be of a good quality,

Salt.

On this day's journey I had an opportunity of observing one of the places where salt is made. It was low and moist, with a black mould, consisting of a mixture of sand and clay, that from its appearance I should have reckoned a good soil; but the impregnation of salt renders it greatly inferior, for cultivation, to soils of apparently a worse quality, which are free from salt. The natives allege, that, if they walk much on this saline earth, their bare feet become blistered. In the dry season, the surface of this earth is scraped off, and collected in heaps. In front of these heaps the native salt-makers construct a semicircle of small round cisterns, each about three feet in diameter, and a foot deep. The sides and floors of these cisterns are made of dry mud; and each, at its bottom, on the side toward the heaps of saline earth, has a small aperture, with a wooden spout, to convey the brine into an earthen pot that is placed in a cavity under it. The bottoms of the cisterns are covered with straw, and then the saline earth is put in, till it rises nearly to the level of the tops of the walls. Water is now poured on the surface of the saline earth, and, in filtering through into the pots, carries with it all the salt. The inert earth is then thrown out behind the cisterns, and new earth is put in, for impregnating more water. In the mean time the brine is emptied into a cavity cut in a rock, and the evaporation is performed entirely by the sun. This salt is sold at the rate of twenty *Seers* for a *Sultany Fanam*, while the same sum procures eight *Seers* only of *Madras* salt. The natives say that it is sufficiently wholesome; but my *Madras* servants pretend, that it is capable of producing all manner of

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diseases; the prejudices, of all nations, however, concerning the wholesomeness and insalubrity of different aliments, are so well known, as to deserve no attention. The grain of the salt is large, and consists of well-formed cubes; but it is mixed with much earthy impurity. At each of these salt works is an image of *Ganeswara,* who receives sacrifices to prevent him from disturbing the operation. The image is placed in a temple little better than one of the cisterns.

Hedges of the *Tirucalli.*

The *Euphorbium Tirucalli,* with very little trouble, makes excellent fences. In the beginning of the rainy season, cuttings are planted in a trench, which is dug where the fence is intended to grow, and they take root without any farther trouble. No cattle will eat this plant; so that it is easily preserved, and in one year becomes a tolerable fence. The natives here plant also many aloes *(agave vivipara)* in their hedges, and use the leaves for making cordage. It forms a strong defence against both man and beast, and thrives better in the arid soil of *Mysore,* than in any other place that I have seen: its *Canarese,* or *Karnataca* name is *Ravana Meshid.*

Aloes.

Tayculum.

Tayculum is strongly situated at the end of a small hill of granite, and has a triple wall, each line strengthened with various defences. The houses, about a hundred in number, are very poor, and hardly fill up the space between the outer and second line of defence, about sixty of these houses are occupied by Mussulmans, among whom is the *Amildar.* There are eight families of *Bráhmans,* who are in possession of all the other offices under government. On the outside of the fort is a temple of *Siva,* and within it one of *Vishnu;* both of which are ruinous. On visiting the latter, I asked when and by whom it was built. A Mussulman, who was my conductor, replied, that owing to the great antiquity of the building, nobody knew. On hearing this, a *Bráhman,* sitting at the porch, asked with a sneer, if every body did not know that it had built itself. The Mussulman, attempting to be witty, asked the *Bráhman*

if he had seen this. "How should I," replied the other, "when it happened so long ago?" The prevalent language at *Tayculum* is the *Karnataca,* called by us *Canarese.* I could not purchase a bullock here for less than double the price that I had paid at *Madras.* I found the people very unwilling to give me information; and I am clearly convinced, from what I have already seen, that without authority to demand it, very little useful information on statistical subjects could be procured by a mere traveller.

Face of the country.

7th May.—In the morning I went to *Waluru.* On the whole day's route I saw no hills, except those mentioned yesterday; but at least six tenths of the whole country seem never to have been cultivated, and of this the greater part is covered with brush or copse wood. There is no large timber; but in some places the trees grow to a size sufficient for building the natives' houses, and other country purposes. The greater part of the brush, however, is no higher than broom or furze, and consists chiefly of the *Cassia auriculata,* and *Ptelea viscosa,* which are the most common bushes throughout this part of the country. The soil is very unfavourable to vegetation; spaces of forty feet square, in many parts, are without a bush or stalk of grass; and whole acres of it may be seen, on which there is nothing but a few scattered bushes, surrounded, at their roots, by small heaps of dust, which the passing wind deposits near the stems. This soil, by the *Tamuls* called *Callaru,* consists of clay, sand, and small fragments of stone; all of which, when allowed to remain undisturbed, concrete, and acquire an almost stony hardness; but the united mass is very capable of being reduced to powder by the plough, and then of producing tolerable crops of grain. The proportion of wet land to the whole of the arable, on this day's route, is very small, and the crop of rice has been lately reaped. The cultivators are just beginning to plough their *dry fields.* The villages still appear to be fortified; and the lower or impure casts not being permitted to build within the walls, their houses are surrounded by strong hedges of the *Cæsalpinia Lacerans.* Roxb. MSS

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Waluru.

Waluru is a town containing about five hundred houses, and by far the richest, and best built, that I have yet seen above the *Ghats.* Most of the houses are white-washed within, and painted red and white without; many of them are terraced with mud, and several are roofed with tiles; but these, as usual in *Mysore,* are very clumsily put on. The houses are in general clean, and, had they any windows, would be comfortable. The town consists of a castle, of a fort or city, and of a *Petta* or suburb. The castle is occupied by a *Rajput* and fifteen of his family. The ancestors of this man were formerly *Jaghirdars* of the place, and of villages in the neighbourhood, to the annual value of eleven thousand *Pagodas,* (3432*l.* 9*s.* 11*d.*) They were expelled by *Hyder;* but, during the war carried on by Lord Cornwallis, they were again put in possession of their territory by Colonel Read. After the peace they were a second time expelled by *Tippoo,* and then the place suffered considerably, as may be known by the ruins of many houses that were burnt on the occasion. The present *Mysore* government has granted the heir of the family an annual pension of four hundred *Pagodas,* (124*l.* 16*s.* 3$\frac{1}{4}$.), and allows him to live in the castle.

Shicai, or *Mimosa saponaria.*

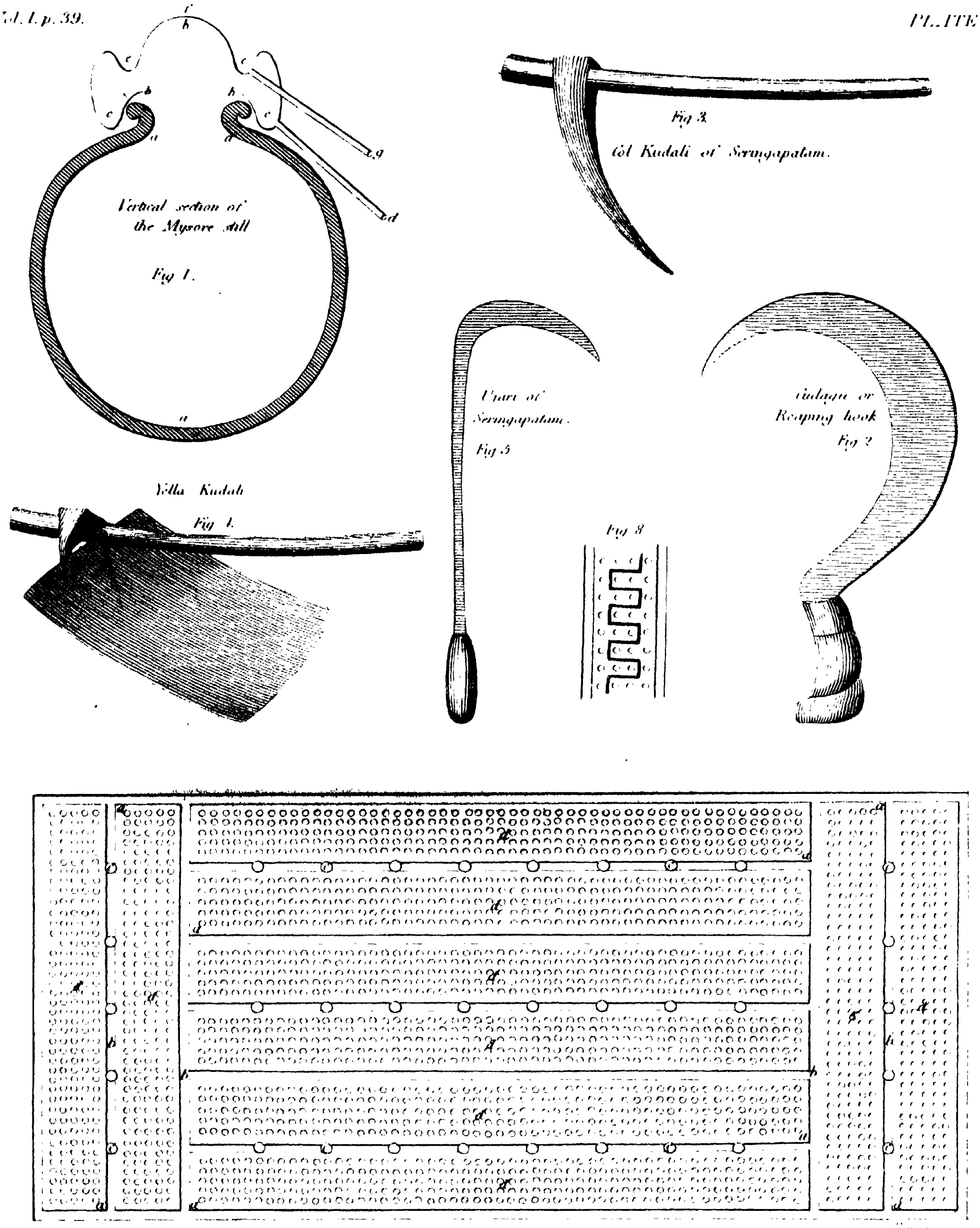
The outer wall is surrounded by a strong hedge of the *Mimosa saponaria;* the fruit of which, called *Shicai,* is used as soap for washing the hair. The leaves, which are acid, serve the poor instead of tamarinds, which are much used in the cookery of the southern *Hindus.* The hedge is rented at 20 *Pagodas* (6*l.* 4*s.* 7*d.*) a year; for the fruit is an article of trade, that is carried even so far as *Madras,* where three pods are said to cost 1 *dub,* or small *pice.* In the same

Sandal-wood.

hedge about twenty years ago were planted some *Sandal-wood* trees, which, although surrounded by the *Mimosa,* a strong scandent shrub, seem to be very healthy; but, as none of them have yet been cut down, it is impossible to ascertain how far they will be valuable.

Water.

The town is badly supplied with water. The reservoir is dry, and the few wells are attended by a great concourse of people. So



Field of Sugar cane

far as I have yet observed above the *Ghats*, tanks are very rare; and at this season of the year, at least, the water is in general very bad and dirty.

Distilled spirits.

In the evening I went to the house of a distiller of country rum, in order to examine his process. The bark of the *Mimosa leucophlea* Roxb: is considered as a necessary ingredient. This tree grows commonly in the country, and is called *Cari Jaly* in the *Canarese*, *Nella tumica* in the *Telinga*, and *Caru velun* in the *Tamul*. The bark is dried, and cut into chips, of which about four pounds are added to one *maund* (24¼ lb.) of sugar-cane *Jagory*, with a quantity of water equal to about twice the bulk of this sweet substance. The mixture is made in an earthen jar, which is kept in the shade, and the fermentation commences in about twenty-four hours. It is completed on the twelfth day; when the liquor is distilled by the following *apparatus* (see PLATE II. Fig. 1.). The body of the still (a a a) is a strong earthen jar, capable of containing three times the bulk of the materials. On this is luted, with cow dung, a copper head (b b b), having on the inside a gutter (c c) for collecting the vapour that has been condensed into spirit by a constant small stream of water, which falls on the head at (f). This water is conveyed away by the pipe (g), while the spirit is conducted into a jar by the pipe (d). The mode of condensing the spirit is very rude; and the liquor, which is never rectified by a second distillation, is execrable. The natives allege that the bark, which is very insipid to the taste, is useful, by diminishing the too great sweetness of the *Jagory*. To me, however, it appears to be rather of use by regulating the fermentation; which, in such a warm climate, would be apt to run suddenly into the acetous.

Fairs.

May 8th.—I was obliged to halt this day at *Waluru*, in order to give rest both to my people and cattle. At this place there is a weekly fair; and to-day one was kept, to which people flocked in great numbers from all the neighbouring country. It is in the larger towns only of the *Mysore* dominions, that weekly fairs are

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held; there are here none of those small markets called *Hauts*, which are so much frequented in *Bengal*, and are such a waste of time to its inhabitants. A small duty is levied on all persons frequenting this fair, bearing a certain proportion to the value that each brings for sale. It does not seem to be considered as burthensome. The articles exposed for sale to-day were provisions of all kinds, coarse cotton cloths, blankets or *cumlies*, iron work for country uses, and the like.

Manufactures.

The chief manufacture of *Waluru* is cotton cloth; and the weavers work both for country use, and for exportation. The coarse cloths for the former purpose, they sell at the weekly fairs. The finer kinds they either weave on their own account, selling them to traders at the same places; or they receive advances from merchants to enable them to purchase thread. On exportation from hence, each bullock load of cloth pays a duty of one *Sultany fanam*, or a little more than eight pence. Their cloth must be cheap, as during the *Sultan's* reign much of it was smuggled out of the country; for he strictly prohibited all trade with the lower *Carnatic*. The merchants of *Wallajah petta* sent up some European goods, spiceries, and other commodities; and, in return, took back cloths, which they sold at *Madras*. At present, of course, the trade is free, and European goods are sold openly in the market.

Cotton.

The cotton raised in the country is not sufficient for its manufactures; the people here get it from *Hossocotay*, and pay a small duty on every bullock load that enters. At *Hossocotay* it is said to pay heavier duties, and is brought there from the northward.

Cumlies, a kind of blankets.

In the neighbouring villages many coarse blankets, or *cumlies*, are woven from the wool which the country produces. When offered for sale, they are almost as hard as pasteboard; but this quality is given to them by a decoction of the kernels of the tamarind, and is intirely removed by the first washing. They seem to be an article of dress in almost universal use above the *Ghats* or passes, and the families of the weavers may be readily distinguished

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by their wearing no linen. The sheep are shorn twice a year, once in the cold, and once in the rainy season; and twelve sheep give as much wool, as makes a blanket six cubits long and three wide.

Gardens.

In this neighbourhood are many kitchen gardens, which are very well cultivated. A gardener is here a separate profession from a farmer, and is considered as inferior in rank. The gardens are on sloping ground, watered from wells by the *Yatam*, or, as the English say, by the *Pacota*. This is reckoned hard labour; and a man who works constantly at the *Yatam*, receives daily a quarter of a *rupee*, or about 6½ pence. These gardeners cultivate a little sugar-cane, but merely to supply the market with cane for eating. All that, of which *Jagory* is made, is raised on irrigated lands by the farmers. The gardeners frequently cultivate the *betel leaf*, (Piper Betle L.) and for that purpose hire from the farmers a portion of their watered lands.

Soil.

The soil of the gardens here is very deep; as, where wells have been dug, it exceeds twenty feet in thickness.

Face of the country.

May 9th.—I went to *Catcolli* through a country containing much less granite than any that I have yet seen above the *Ghats*. The arable land may amount to seven tenths of the whole, and perhaps a twentieth part of it is watered. The rice lands are mostly situated near the banks of the southern *Pennar*, or *Dakshana Pinakani*, as it is called in the *Sanscrit* language. This river passes southward by the east side of *Catcolli*. At present it contains a good deal of stagnant water; but in the rainy season its current is rapid, and it is frequently not fordable. The waste land contains much low brush wood, in some places intermixed with stunted *Mimosas*. The hedges surrounding the villages, in this part of the country, rise very high and thick, so as almost entirely to conceal the mud wall, which enlivens the prospect considerably, especially as at the villages there are a good many *mango* trees. The planting of these, or other fruit trees, is here attended with a considerable

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expense; as every young tree is surrounded by a mud wall, three or four feet high, and perhaps twenty in diameter; and in the dry season the plant requires to be watered, every second or third day, for three years.

Cultivation.

There having now been several showers, the soil has been softened, and the farmers are busy ploughing their dry-fields. Their plough, and manner of working, resemble those of *Bengal.* Both oxen and buffaloes are used, and frequently an animal of each kind is yoked in the same plough. This strongly marks a deficiency of stock; the two animals, from their different paces, being very ill suited to work together. Before the field is ploughed, it is manured with a compost of cow dung, ashes, and mud. The manure is carried out by the women, in baskets placed on their heads, and is distributed very scantily, the baskets being emptied at the distance of about thirty feet from each other.

Strata.

All the way between *Arcot* and this place I have frequently observed strata of *gneiss*, consisting of the same materials with the common grey granite of the country, and disposed in vertical *strata.* Under the great tank here is a remarkable bed of it, consisting of rough grains, and divisible into laminæ from one quarter to one inch thick; and these are united into *strata* from one to two feet wide. These *strata* run by the compass north and south; and are intermixed with others of *hornblende-slate,* interspersed with small grains of white *quartz,* which thus compose a *granitell.* These strata, as are also those of the grey granite throughout the country, are intersected nearly at right angles by veins of *quartz,* often a foot and a half wide. These veins cross the various *strata* of granite, *gneiss,* and *hornblende,* to great lengths, without altering their direction; they frequently also contain *felspar,* or *felspar* and *quartz* intermixed, as is the case at *Catcolli,* where the veins are filled with a mixture of reddish *felspar* and *quartz*; which, if not venigenous, would form a *granitell.* It has commonly been alleged, that large veins of these materials denote a country to be productive

of gems; but the contrary is the case here, no precious stones having been ever found in *Mysore*. It must be observed, that among the natives the *gneiss* and grey granite are called white-stone; and the *hornblende-slate* with *quartz*, and the *quartz* impregnated with iron, which I have before mentioned, are called the black-stone; in fact these are found to approach to each other by such gradual shades, that it seems difficult to distinguish them, at least as *genera;* yet in many cases the two extremes of each kind are so different, that they have very little resemblance to each other.

Calcarious nodules.

In the soil of this country are found two varieties of *congcar*, or calcarious nodules. The nodules are often as large as a man's head, are very irregular in shape, and frequently perforated with holes, apparently from having been formed round the roots of plants. Outwardly they have an earthy resemblance, although in some parts there is an appearance of irregular crystallization. They are very hard with a splintery fracture. Both dissolve readily, and with a strong effervescence, in the muriatic acid; but deposite a fine sand, that is insoluble. The solution contains iron, and their specific gravity is very considerable. The one is externally of a greyish white; but its fracture has a dull purplish brown tinge, intermixed with shining particles, arising from its texture, which is a mixture of compact and sparry. Its *fracture* is *splintery;* and it is *opake*. The *scratch* is of a colour *similar* to that of the stone, which is *hardish*. Its *lustre* is *common*. The sand which it contains seems to be *quartz*, stained of a rust colour by iron. The other variety has, both externally and internally, a darker colour, and it has more numerous and larger *sparry* concretions. On breaking it, are discovered many irregular cavities lined with small, white, irregular crystallizations. It contains many black dots, probably fragments of *shorl*.

There can be little doubt, that these nodules have been formed by a deposition from water, and are therefore a *tophus*, or calcarious

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It is a square court, having at two of the sides a corridor, under which the women sat at their meals and amusements. Behind the corridor are their sleeping rooms, which are mean, and dark, being about twelve feet square, and without any air or light, but what is admitted by the door, or in some by a hole about a foot wide. Lowness of roof is a fault prevailing over the whole structure. Before the palace is a large square court fronted by the *Nóbat Khána*, or station for the band of music, and surrounded by a fine corridor. The palace lately served the officers of a European regiment for quarters, while the privates were lodged in the corridor.

Old *Bangalore*.

In the centre of the fort are still visible the ruins of the mud wall, that surrounded the small village, which occupied the place before *Hyder* founded the city.

Gardens.

11*th May*.—I visited the gardens made by the late Mussulman princes, *Hyder* and *Tippoo*. They are extensive, and divided into square plots separated by walks, the sides of which are ornamented with fine cypress trees. The plots are filled with fruit trees, and pot-herbs. The Mussulman fashion is to have a separate piece of ground alloted for each kind of plant. Thus one plot is entirely filled with rose trees, another with pomegranates, and so forth. The walks are not gravelled, and the cultivation of the whole is rather slovenly; but the people say, that formerly the gardens were well kept. Want of water is the principal defect of these gardens; for in this arid country every thing, during the dry season, must be artificially watered. The garden of *Tippoo* is supplied from three wells, the water of which is raised by the *Capily*, or leather-bag, fastened to a cord passing over a pulley, and wrought by a pair of bullocks, which descend an inclined plane. This, the workmen say, is a much more effectual machine than the *Yatam*. *Hyder's* garden is watered from a reservoir, without the assistance of machinery. The taste of *Hyder* accorded more with the English, than that of his son. His walks are wider, his cypress trees are not so much crowded; and in the means for watering the plots there is

not so much masonry, or bricklayer's work, employed. There is, indeed, so much of these in the parts of *Tippoo's* garden which he probably considered the finest, as almost to cover the ground, and to leave nothing but holes, as it were, through which the trees grow.

Fruits.

In this climate the cypress and vine grow luxuriantly, and the apple and peach both produce fruit; the former much better, and the latter much worse than at *Calcutta.* Some pine and oak plants, lately introduced from the Cape of Good Hope, seem to be thriving. I think there can be little doubt, but that in this country all the valuable plants of the *Levant* would succeed. The people at the gardens could form no estimate of the quantity of grapes produced by any number of vines.

Mussulmans.

At *Bangalore* there are many Mussulmans; and, owing to the change of government, they are in great distress. Accustomed to a military life, they do not readily enter into civil occupations, nor are they willing to attach themselves to the military service of the enemies of their late Sultán. Many of the more wealthy among them, however, are now betaking themselves to trade, and the poorer sort are gaining a livelihood by agriculture.

Bráhmans.

I was much surprised to hear, that the greatest complainers against the change of government are certain *Bráhmans;* although, by the fall of *Tippoo,* this cast has been freed from persecution, and is now in the almost exclusive possession of public offices. But it is alleged, that under the government of *Tippoo,* the persecutions fell chiefly on the *Bráhmans* attached to temples, who are considered as low men; while the *Lókika,* being the only men of business in the country, were in full possession of the revenue department. During the reign of the Sultán, the number of petty officers in this department was immense, and every one was permitted to share in the spoil of the country. The present system is, to reduce the number of officers, and to give to those who are employed allowances that ought to put them above temptation; while a strict watch at the head of

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affairs renders it very dangerous either to injure the revenue, or the subject. By this system many *Bráhmans*, formerly employed, are now destitute, and are said to be very clamorous.

Leprosy, called *Durda.*

I saw here a man labouring under the *Durda, Elephantiasis*, or *Lepra Arabum;* and am told, that in almost every village one or two persons will be found afflicted with this terrible malady. It is very much confined to the poorer class of inhabitants, who here, however, enjoy a dry air, and use very little fish in their food. The frequency of the disease in the lower parts of *Bengal*, and about *Cochin* on the coast of *Malabar*, had led to an opinion, that it was produced by a moist climate, and a diet consisting of the fish which frequent muddy places: but the prevalence of the disease among the dry hills of *Mysore* strongly invalidates this opinion, especially as fish are little used by the inhabitants of that country.

Leprosy, called *Kusht'ha.*

Above the *Ghats* the *Kusht'ha*, or leprosy, in which the skin of the natives becomes white, is also very common. The persons troubled with it enjoy, in every respect, good health, and their children are like those of other people.

Kingara.

12th *May.*—I went to *Kingara*, or *Tingara*, which seems to have formerly been much more flourishing than it is at present. The hedges, and other defences of the town, are of much greater extent than would be necessary for the present population; and the space within them contains the ruins of many houses. It is said to have been destroyed by *Tippoo* in order to prevent it from being of use to Lord Cornwallis, and never to have recovered the loss which it then sustained. The inhabitants were very inhospitable; a *Bráhman* encouraging them to refuse us any assistance, by pretending that my people would not pay for what they might obtain. The fort is in good condition.

Appearance of the country.

The arable land on this day's route does not appear ever to have exceeded four tenths of the country; and the small proportion of irrigated land which has formerly been cultivated, appears to be now waste, owing to the decay of the reservoirs. The uncultivated

land is more hilly than any between the *Ghats* and *Bangalore*. It is very rocky and bare, and does not contain even copse wood. Some part of our route led by the banks of a small river, which contained a little running water.

Smuggling.

It is here alleged, that *Tippoo's* regulations, prohibiting trade to the dominions of the *Nabob* of *Arcot*, were very ill observed, and that passports were privately given to traders by the principal officers of government. The Sultan's table was served with country salt, and his nobles attended the court in their native manufactures; but, among the rich at home, sea-salt, and the cloths of Europe, *Bengal*, and *Madras*, were in constant use.

Appearance of the country.

13th *May*.—Went to *Wiridy*, or *Biridy*, a place which derives its name from the tree so called in the *Karnataca* language, and which is either the same, or very nearly resembles, the *Pterocarpus Sissoo* of Dr. Roxburgh. The country through which I passed is one continued copse: but, as at *Wiridy*, there is a valley about a mile wide, and as there are some small villages scattered in the woods, I calculate the arable part of the country at about a sixth part. I observed no watered land.

Reservoirs.

There are, indeed, some small reservoirs; but the water contained in these, is destined merely to supply the cattle with drink. A small reservoir of this kind in the *Karnataca* language is called *Cuttay*, as the large ones for watering the lands are called *Carays*. They are both formed exactly in the same manner, by building a mound or dam, of earth and stone, across a hollow ground. Large reservoirs, or *Carays*, might no doubt be formed every where in a hilly country; but, where there is not a sufficient extent of level land with a good soil for the cultivation of rice, the expense of such works would far exceed the profits.

Woods.

The uncultivated land is very hilly, and in many places rocky; yet some of it seems capable of being rendered arable. Except for fewel, the wood is of very little use, as it is in general too small for planks, or beams. Tigers are very numerous among the copse; a

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circumstance, however, which does not prevent the inhabitants from sending their cattle into it. A beast is occasionally lost; but this loss is compensated by the abundance of grass. The woods here are not impenetrable, like those of *Chittagong*, where a luxuriant growth of rattans, and climbers of numerous kinds, prevents all ingress. Here every thing is stunted, and the trees serve to render the grass better, by sheltering it from the sun.

Insalubrity of the climate.

From the hilly nature of the surrounding country, both *Kingara* and *Wiridy* are considered as very unhealthy. Fevers, want of appetite, and pains in the bowels, are very common, even among the natives.

Wiridy.

The country about *Wiridy* is beautiful. A small river runs north and south through the valley, which is about a mile wide, and extends far in the direction of the river. It consists of fields, swelling like the grounds in Kent, and contains many scattered trees, *mangoes (mangifera)*, *banyans (Ficus bengalensis)*, and the like. It is on all sides surrounded by hills, most of them covered with wood, but some rising into bare rocky peaks. If the rivulet were adequate to the other parts of the view, this would be complete; but at present it contains only small pools of dirty stagnant water.

Villages.

The villages are small and poor, and are not fortified like the others in the country; the woods, by which they are surrounded, having probably been sufficient to keep off the irregular troops that attend all Indian armies, and which generally are cavalry. In case of invasion, the inhabitants have also been accustomed to take refuge in the neighbouring hill-fort called *Ramagiri.*

Strata.

The *strata* throughout these hills, as well as in the country between them and the eastern *Ghats,* are disposed about north and south, by the compass, and are all nearly vertical. A very common *stratum* here is white *quartz* running parallel to the *gneiss,* and disposed between two *strata* of that rock. I have observed these *strata* of *quartz* three feet thick.

Forests.

In my evening walk the following plants were shewn to me in the woods as being useful. The names are *Karnataca.*

1. *Mara halay, Nerium tinctorium,* Rox.
Grows sometimes to a large tree, and is used for planks.

2. *Mara Harulu, Iatropha Curcas,* Lin.
From the seed of this shrub, oil for the lamp is extracted, by the following process. Parch the seed in an earthen pot, then bruise it, and put the powder in boiling water for three hours. The oil then rises to the surface, and is removed by skimming. This oil being much used by the poor, the plant is frequently raised in the hedges near villages; but it is also found wild in almost every copse, especially near the banks of torrents.

3. *Alaygara, Terminalia myrobalana citrina* of *Koenig*. The fruit is used in medicine, and as a pickle.

4. *Dévadárum, Erythroxylon sideroxyloides* of *Lamarck.*
It grows to a considerable size, and its timber is black and odorous, serving the inhabitants who are poor in place of sandal wood. It seems to be a tree that deserves particular notice.

5. *Sri Gunda Chica, Santalum album,* Lin.
Grows in the woods towards *Chinapatam.* It is never planted, but springs up spontaneously. No person is allowed to cut it, without permission from the *Amildar,* or officer, who sells it on account of the *Circar,* or government.

6. *Wotu, Loranthus falcatus,* Lin.
The bark of this beautiful parasitical shrub is used by the poorer natives in place of the *betel-nut.* With quicklime it tinges the saliva and mouth of a fine red, brighter even than that communicated by the *Areca.* The bark of the *Sandal-wood-tree* serves the same purpose.

7. *Easy, Premna tomentosa,* Willd.
Makes beams and planks, with posts of a bad quality.

8. *Ha-Shi-cai, Mimosa pennata.*
Is a favourite food of the long-legged goat of this country.

9. *Cacay, Cassia fistula,* Lin.
This is the greatest ornament of the woods of *Karnáta.* The foliage

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is a fine shining green; and the pendulous strings of flowers surpass those of the *Laburnum*, not only in beauty, but in length and number. In the cool of the morning they diffuse a most agreeable perfume. The plant is sacred to *Ganeswara*, the god that is addressed by all those who are about to commence any undertaking; as he is considered to be the Power that hinders or stops all human efforts, in the same manner as his father *Iswara* is the Power that deprives all beings of life. The people here, instead of addressing themselves immediately to the god, worship him under the form of his favourite tree. At this season, the cultivators of every village place a stake of the *Cacay* in the ground, level a circular space round it, and purify this area with cow-dung. On this spot they assemble before the commencement of seed-time, burn some incense before the stake, make offerings of rice, milk, and the like, and pray that it will not prevent the success of their crops. The ceremony concludes with a rural feast.

Tobacco.

In both the upper and lower *Carnatics*, taking snuff is much more common than in *Bengal:* indeed, I have never been in a country where the custom was more prevalent. Smoking, on the contrary, is in great disrepute. The *Hooka* is totally unknown, except among Mussulmans. The lower classes smoke *Cheruts*, or tobacco rolled up in a leaf; but a *Bráhman* would lose cast by such a practice, and it is not considered as becoming, even among the richer part of the *Súdra* tribe.

Forests.

14th *May*.—I went to *Chinapatam*, or *Chinapatana*, through a very beautiful country, consisting of swelling grounds, in some places cultivated, and in many more covered with trees, which are intermixed with steep fantastic rocks and hills. The trees here are by far the finest that I have seen in either *Carnatic*, although they fall very short of the stately forests of *Chittagong*. In these woods the *bamboo* is common. It is now in flower, and produces a great quantity of grain, which is gathered for food by the poor inhabitants of the neighbourhood.

The cultivation is said to extend but a short distance from the road, there being on either hand extensive woods. I therefore reckon the arable land, on this day's route, at one tenth of the country. It consists entirely of *dry-fields*. CHAPTER I. Face of the country.

At a small temple, dedicated to *Hanumanta*, I observed, for the first time, the rock of red granite. It is a handsome variety, consisting of bright red *felspar*, a small quantity of glassy *quartz*, and a very minute proportion of black *mica*. I had before seen many detached masses of it in buildings; so that it is probably common in the country. It is a most elegant stone. Red granite.

Chinapatam, or *Chinapatana*, is an open town, containing about a thousand houses. At some distance from it stands a handsome stone fort: this was formerly the residence of a *Polygar* family of distinction, which derived its name from *Jacadéva Raia*. *Chinapatam*.

The *Cutwal*, or superintendent of the market at *Chinapatam*, is a Mussulman, and is extremely attentive to strangers. This, however, does not proceed from any principle of hospitality, a virtue which seems little known in India. He expects a present in return, and charges three times the usual price for every thing that he furnishes. Between this and *Madras* I have met with two other native officers that were civil. One of these was a eunuch, the *Cutwal* at *Satghur* in the dominions of the *Nabob* of *Arcot*; but he seemed to be actuated by the same motives with the *Cutwal* of *Chinapatam*. The other was a *Bráhman*, the *Amildar* at *Waluru*, who was very polite, and did not seem to have any sinister design. Among all the other officers of government, I found that any attention to a traveller was considered as degrading to their rank, and could only be extorted by authority. Inhospitable disposition of the native officers.

In sight of *Chinapatam*, but at a considerable distance, is *Capála durga*, one of the places to which *Tippoo* sent those unfortunate wretches who incurred his displeasure. It is a fort situated on a high steep rock. Death soon terminated the sufferings of those confined in it; for the air and water were extremely bad; and the *Capála durga*.

CHAPTER I. wells were frequently rendered more loathsome and pernicious, by having purposely thrown into them the branches of *Euphorbium*, and dead snakes, or other reptiles, in order to increase the putrefaction. It is said, that no native prisoner ever returned to detail the horrors of this dungeon.

Face of the country. 15th *May*.—I went to *Muduru*. All the country seems to have been arable, except on some high land that separates the two districts of *Chinapatam* and *Muduru*. This high land is not in general too steep for the plough, and some parts of it have been cultivated; but much of it remains entirely in a state of nature, and is covered with brushwood. There are a few small conical hills, and large masses of naked granite. The arable land, on this day's journey, I estimate at three quarters of the whole country. The plantations of palm and fruit trees are pretty extensive, and the watered grounds perhaps amount to a tenth part of the arable lands. Many of the fields are surrounded by hedges; but these are not kept in such repair as to be fences against cattle. Perhaps they are meant merely to distinguish the fields of different proprietors, or tenants, and to contain the *Agave vivipara*, and *Iatropha curcas*, that are wanted for the use of the country, and of which they chiefly consist.

Wild date. Among the waste lands there are many parts that seem capable of being rendered arable. In several places the *Phœnix farinifera*, Roxb: abounds; and intermixed with it, the *Elate sylvestris*, or wild date. From this the inhabitants extract *Tári*, or *Toddy*, in the same manner as is practised in *Bengal*. Here the *Tári* is used for drinking only; but in some places, where it is more plenty, it is boiled down into a hard substance called *Jagory*, which by the poor is substituted in place of the *Jagory* extracted from the sugar-cane.

Irrigation. There have been this season two considerable falls of rain, which have enabled the inhabitants to plough a great deal, and the country to assume some degree of verdure. A river passes this place, which in the rainy season is considerable, and now contains a small quan-

tity of clear running water. Here is also a large reservoir, which some years ago was broken down, and has not yet been repaired: but 2000 *Cantery Pagodas (Canter'raia Varaha)* (671 *l.* 11 *s.* 2 *d.*) have now been granted for the purpose; and it is supposed, that, when completed, it will supply the rice grounds in the bottom of the valley for seven miles in length.

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Depopulation.

The oppressions of *Tippoo* and the miseries of war are said to have driven away four tenths of the cultivators. That tyrant received the country in a very flourishing state from his father, of whom every native that I have conversed with on the subject speaks in terms of the highest respect.

Villages.

As we approach the capital, I think the style of building becomes somewhat better. The houses, although in other respects equally mean, have in general small *Verandas*, or open galleries, in front, to shelter from the sun their shops and their customers. The villages are not fortified, the vicinity of the capital having been a sufficient security against marauders.

Muduru.

Near *Muduru* are the ruins of a stone fort, containing a temple of *Vishnu*, and the houses of several *Bráhmans*. This fort was built by the grandfather of the present *Rájá* of *Mysore*, and destroyed by the late Sultan with great propriety; for it could make no resistance against a European army, but might serve as a protection to their convoys; at the same time, it was burthensome, by being much stronger than was necessary for protecting the town against plundering parties of native cavalry.

Towns.

It must be observed, that throughout both *Carnatics*, except at *Madras*, and some other large towns under the government of infidels, the *Bráhmans* appropriate to themselves a particular quarter of every town, and that generally the best fortified. A *Súdra* is not permitted to dwell in the same street with a *Bráhman;* while he again exacts the same difference from the *Whalliaru* or *Parriars*, and other low casts. These people in general live in wretched

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huts about the suburbs. A *Bráhman* is considered as polluted by merely walking through such a place.

Flower gardens.

Although the *Nerium odorum* is very common by the sides of rivers in most parts of the *Mysore* dominions, I found a garden here, of about an acre in extent, which was planted with nothing else. The flowers are dedicated to the temple, and a garland-maker is paid by a merchant to gather them for the use of the god. This is one of the deeds called charity by the *Hindus*. This plant has usually been taken for the *oleander*, which, I believe, is not a native of India.

Appearance of the country.

16th *May*.—I went to *Mundium*, through a country free from hills, but of which not more than one half is arable. Much of it, however, might be rendered so without difficulty. The soil is in general poor. The waste land is occupied by brushwood, and many places are covered with the *Phœnix farinifera*, Roxb. among which are some trees of the wild date.

Wild date.

It is reported, that this tree was formerly very common; but *Tippoo*, observing that his subjects frequently intoxicated themselves with the *Tári*, ordered the whole to be cut down; and in places near the capital the order was enforced.

Austerity affected by *Tippoo*.

This prince is said to have attempted to introduce a great strictness of manners; absolutely prohibiting the use of all spiritous liquors, and ordering that no loose women should be tolerated. He was himself, however, unreasonably addicted to women; and the *Bráhmans* here allege, that he sometimes forced away the most beautiful of their daughters. After some detention in the *Zenana*, if he did not like them, he sent the girls back to their fathers, who, in general, refused to admit them into their families. But *Tippoo* was not to be treated in this manner with impunity. On such occasions, he sent for the father, took from him all his property, and flogged him severely. He then ordered the girl to point out any *Bráhman* for a husband, and the unfortunate man was

flogged until he gave his consent. A loss of cast, of course, ensued; but the husband commonly fled out of *Tippoo's* dominions, leaving his wife behind, to want, or prostitution. On going to another place, and turning away his unclean wife, he could get an absolution from his *Guru*, with permission to marry again. CHAPTER I.

The hedges here, like those which I saw yesterday, are very bad fences, and are made of the *Euphorbium antiquorum*. When the ground is sown, the farmers fill up the gaps with thorns cut from the *Mimosa indica* of *Lamarck*. This tree is allowed to grow promiscuously through the fields, and its branches are lopped off for fewel, and for repairing the fences. Its shade does not injure the crops, and its timber is valuable for making ploughs, and other instruments of agriculture. Fences.

Mundium is a poor village, fortified by a mud wall that has been rebuilt since the restoration of the *Rája's* government. It was formerly an *Agrarum*, or village bestowed in charity on the *Bráhmans*. They were deprived of it by *Tippoo*, when he annexed to the *Circar* or public, all the property of that kind. *Mundium.*

In the evening a flight of locusts passed over the town. It extended in length probably about three miles; its width was about a hundred yards, and its height fifty feet. The insects passed from west to east in the direction of the wind, at the rate of six or seven miles an hour. The whole ground, and every tree and bush, was covered with them; but each individual halted for a very short time on any one spot. They went in a very close body, and left behind them very few stragglers. In an hour after the flock had passed, few were to be discovered in the neighbourhood of the town. The stragglers from the grand body did not extend above a hundred yards on each side of it, and were perhaps not more than one to the cubic foot. In the middle of the flock four times that number must be allowed to the same space. I could not perceive, that in their passage they did the smallest damage to any vegetable; but I was informed, that last year a flock passed, when the crop Locusts.

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of *Iola (Holcus Sorghum)* was young, and had entirely devoured it. The noise of this immense number of insects somewhat resembled the sound of a cataract. At a distance they appeared like a long, narrow, red cloud near the horizon, which was continually varying its shape. The locusts were as large as a man's finger, and of a reddish colour. Some of them I put into a box, intending next day to examine them; but in the course of the night they were devoured by the ants.

Face of the country.

17th *May.*—In the evening I went from *Mundium* to the banks of the *Cávery (Kavari)*, opposite to *Seringapatam.* For one half of the way the country is almost entirely free from rocks, or waste lands. Here I observed a space of about fifty yards in diameter, consisting entirely of a denudated rock of very white glassy *quartz.* There was no other rock near it. The *quartz* separates into fragments of a rhomboidal form, from the size of an orange, to that of a man's head; but those are all disposed in *strata,* every six or eight inches of rock separating, with a clean straight surface, from the similar parts on either hand. These *strata* are vertical; but, contrary to all the others that I have seen in the country, run nearly east and west.

About half way to *Seringapatam* I arrived at a hilly country that reaches very near to the *Cávery.* On the south side of these hills Lord Cornwallis encamped, before the final engagement which gave him possession of the island. His marches from *Bangalore* may every where be traced by the bones of cattle, thousands of which perished through fatigue and hunger. The road among these hills is no where steep, as it leads over a part of the ridge that is not high; but towards the west are numerous small mountains. Many parts of these hills are cultivated; but much more is incapable of ever becoming arable. The whole is stony, and the barest country that I have ever seen. From ascending the ridge, until reaching the *Cávery,* one can hardly find a bush sufficiently large to make a broom. Of the country in this day's route perhaps seven tenths

are arable, and of these a fifth at least produces wet crops. Many of the tanks however are ruinous, and their beds are now cultivated with *Iola*, or *Holcus Sorghum*.

Strata.

The *strata* on these hills are various. I saw red granitic *porphyry*, and took specimens of a fine-grained *gneiss* consisting of pale red *felspar*, white *quartz*, and black *mica*. The most common rock, however, is the *hornblende* slate with *quartz*, which I have before mentioned. When exposed to the air in large high masses, so as to prevent the water from lodging on it, the pieces decay into fragments of a rhomboidal form; but, when exposed to the air on a level with the ground, so as to be penetrated by the rain water, it divides into thin laminæ, like common *schistus*.

CHAPTER II.

SERINGAPATAM, AND ITS VICINITY.

CHAPTER II.

MAY 18th, I was employed at *Seringapatam* in delivering my credentials.

May 18. Reception at *Seringapatam.*

19th *May.*—I had an interview with *Purnea,* the *Dewan* of the *Mysore Rája,* and, during that prince's minority, the chief administrator of his government. By means of Colonel Close, I have received assurances of every assistance in forwarding the objects of my mission; and a *Bráhman* has been appointed to accompany me, with orders to call upon every person that I shall desire for information.

Purnea.

Purnea is a *Bráhman* of the *Madual* sect, and descended from a family of the *Coimbetore* country. His native language is, of course, *Tamul;* but he speaks the *Karnataca,* Mussulman, *Marattah,* and I believe the Persian. He is said, by good judges, to be a person extremely well versed in the affairs of the country, and is much more active than *Bráhmans* in general are. By the inhabitants he is now called *Srí Mantra,* the same title that is given to the *Peshwa* at *Poonah.* It is said to signify a person who has been fortunate from the time of his having been in the womb. Next to *Meer Saduc,* he seems to have enjoyed a greater power, under the late Sultan, than any other person; but his authority was greatly inferior to that of the above-mentioned favourite; and he is said to have been in no small danger from the bigotry of his master. The Sultan is reported to have once proposed to *Purnea* to become a convert to the faith of Mahomet: as all proposals from a Sultan are tantamount to orders that must be obeyed, the *Bráhman* replied, "I am your slave," and

immediately retired. Those who knew the man, and especially the Sultan's mother, a very respectable lady, represented to that prince, how dangerous such a proceeding was, and that, if persisted in, it would throw every thing into confusion; for the apparent acquiescence of *Purnea* was merely words of course, and his influence among the people was considerable. *Tippoo* very properly allowed the affair to rest, and nothing more was said on the subject. May 19.

From the 20th of *May*, to the 5th of *June*, I was employed in visiting every thing remarkable in *Seringapatam* and its neighbourhood, and in taking an account of the state of agriculture, arts, and commerce at that place.

Seringapatam, as is well known, is situated at the upper end of an island surrounded by the *Cávery*, which is here a large and rapid river, with a very extensive channel, filled with rocks, and fragments of granite. At this season it is in many places fordable with facility; but during the rains it rises very high, to the great inconvenience of the inhabitants. On the south branch of the river a bridge has been erected, which serves also as an aqueduct, to convey from the upper part of the river a large canal of water into the town and island. The rudeness of this bridge will show the small progress that the arts have made in *Mysore*. Square pillars of granite are cut from the rock, of a sufficient height to rise above the water at the highest floods. These are placed upright in rows, as long as the intended width of the bridge, and distant about ten feet from each other. They are secured at the bottom by being let into the solid rock, and their tops being cut to a level, a long stone is laid upon each row. Above these longitudinal stones others are placed contiguous to each other, and stretching from row to row, in the direction of the length of the bridge. The whole breadth of this may be twenty feet. One half is occupied by the aqueduct, which is secured at the bottom and on both sides by brick and plaster. The road is laid with gravel, and secured by

Cávery.

Bridges.

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a parapet wall on one side, and by the aqueduct on the other. But, however rude such a bridge may be, it is of most essential convenience to the town, and to the inhabitants of the southern bank of the river, though the construction is attended with great expense. The inconveniencies felt from the want of a bridge on the northern branch are so great, that both *Purnea* and the Resident are very anxious to have one erected; but on an estimate being formed, it is found, that even without an aqueduct, a rude bridge of this kind would cost 16,000 *Canter'raia Pagodas*, or 5,372*l.* 9*s.* 4*d.* It is very fairly proposed, that the Company should defray one half of this, as lords of the island; while the *Rája* should defray the other half, on account of the advantages to be derived by his subjects on the north side of the river.

Name of *Seringapatam.*

Seringapatam is commonly called *Patana*, or *Patan*, that is to say, the city; but the name used in our maps is a corruption from *Srí Ranga Patana*, the city of *Srí Ranga*, from its containing a temple dedicated to *Vishnu* under that name. The temple is of great celebrity, and of much higher antiquity than the city, which did not rise to be of importance until the time of the princes of the *Mysore* dynasty.

City and island.

The island is about three miles in length, and one in breadth, and has a most dreary, ugly appearance; for naked rock, and dirty mud walls are its predominant features. The fort or city of *Srí Ranga*, occupies its upper end, and is an immense, unfinished, unsightly, and injudicious mass of building. *Tippoo* seems to have had too high an opinion of his own skill to have consulted the French who were about him; and adhered to the old Indian style of fortification, labouring to make the place strong by heaping walls and cavaliers one above the other. He was also very diligent in cutting ditches through the granite; but, as he had always on hand more projects than his finances were adequate to defray, he never finished any work. He retained the long straight walls and square bastions of the *Hindus*; and his glacis was in many parts so

high and steep, as to shelter an assailant from the fire of the ramparts. In the island also, in order to water a garden, he had dug a deep canal parallel to the works of the fort, and not above eight hundred yards distant from them. He was so unskilled, as to look upon this as an additional security to the place; but had it been deemed necessary to besiege the town regularly from the island, the assailant would have found it of the utmost use. Had *Tippoo's* troops been capable of defending the place properly, this mode of attack would have been necessary; but the confidence which our officers justly reposed in the superiority of their men, and the extreme difficulty of bringing up the immense stores necessary to batter down many heavy works, made them prefer an attack across the river, where the works were not so strong, and where they ventured on storming a breach, that nothing, but a very great difference between the intrepidity of the assailants and defendants, could have enabled them to carry. The depth of the river was of little importance; but the assailants, in passing over its rocky channel, were exposed to a heavy fire of artillery, and suffered considerable loss.

Capture.

On ascending the breach, our men found an inner rampart lined with troops, separated from them by a wide and deep ditch, and defended at its angle by a high cavalier. By this they were for a little while discouraged; as, from the information of spies, they had expected to have been able to mount the cavalier from the breach, and to form a lodgement there, till means could be taken to gain the inner works, and expel the garrison, which consisted of about eight thousand men, nearly the same number with that employed on the storming party.

After, however, the first surprise occasioned by this disappointment, the troops soon recovered their spirits, and pushed on, along the outer rampart, towards both the right and left of the breach. Those who went to the left found great opposition. At every twenty or thirty yards distance, the rampart was crossed by

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traverses, and these were defended by the Sultan in person. The loss of men here was considerable; but the English troops gradually advanced, and the Sultan retired slowly, defending his ground with obstinacy.

The enfilading fire from the *Bombay* army, on the north side of the river, had been so strong, that the defendants had been entirely driven from the ramparts on the right of the breach, and had been prevented from raising any traverses. Our people who went in that direction did not meet with the smallest opposition; and the flank companies of the 12th regiment, having found a passage across the inner ditch, passed through the town to attack the rear of the enemy, who were still opposing the Europeans on the left. The Sultan had now been driven back to the eastward of the palace, and is said to have had his horse shot under him. He might certainly have gone out at a gate leading to the north branch of the river, and nothing could have prevented him from crossing that, and joining his cavalry, which, under the command of his son *Futty Hyder*, and of *Purnea*, were hovering round the *Bombay* army. Fortunately, he decided upon going into the inner fort, by a narrow sally-port; and, as he was attempting to do so, he was met by the crowd flying from the flank companies of the 12th regiment; while the troops, coming up behind, cut off all means of retreat. Both parties seem to have fired into the gateway, and some of the Europeans must have passed through with the bayonet; as a wound, evidently inflicted by that weapon, was discovered in the arm of the Sultan. His object in going into this gateway, is disputed. The *Hindus* universally think, that, finding the place taken, he was going to the palace to put all his family to death, and then to seek for his own destruction in the midst of his enemies. But, although such is considered by the *Hindus* as the proper conduct for a prince in his situation, we have no reason to think that a Mussulman would conduct himself in this manner; nor was *Tippoo* ever accused of want of affection for his family. I think it more probable, that

Death of *Tippoo*.

he was ignorant of the British troops having got into the inner fort, and was retiring thither in hopes of being still able to repel the attack.

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Destruction of the garrison.

No individual claimed the honour of having slain the Sultan, nor did any of either party know that he had fallen in the gateway. The assailants were, indeed, at that time too much enraged to think of any thing but the destruction of their enemy. Each division pushed on towards the eastern end of the town; and, as they advanced, the carnage increased. The garrison threw themselves from the works, attempting to escape into the island, and from thence to their cavalry. The greater part, however, were either killed by the fall, or broke their limbs in a most shocking manner. *Meer Saduc*, the favourite of the Sultan, fell in attempting to get through the gates. He is supposed to have been killed by the hands of *Tippoo's* soldiery, and his corpse lay for some time exposed to the insults of the populace, none of whom passed without spitting on it, or loading it with a slipper; for to him they attributed most of their sufferings in the tyrannical reign of the Sultan.

The two divisions of the storming army now met at an open place surrounding a very fine mosque, into which the remains of the garrison withdrew, and with their destruction the fighting nearly ceased. The number of burials amounted to somewhat above seven thousand; several of these were towns-people of both sexes, and all ages; but this was accidental, for our soldiers killed none intentionally but fighting men. Those who are disposed to declaim on the horrors of a town taken by assault, may always find room to dwell on the women, infants, and aged persons killed, and on the little protection given by places, however sacred; for such terrible things must always happen, when an enraged soldiery with fire-arms are pursuing an enemy through a populous place.

Plunder.

When our two parties had met, and no longer saw before their eyes the enemy, by whom they, or their countrymen, had been often most barbarously used, they soon cooled, and were disposed, by their

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officers, in the manner most proper to secure their new conquest; many, however, left their ranks; and the followers of the camp, under pretext of taking refreshment to their masters, poured into the town, and an entire night was employed in plunder. In this, I believe, very little murder was committed; although there can be no doubt that many persons were beaten, and threatened with death, in order to make them discover their property. The women on this occasion went out into the streets, and stood there all night in large groups; I suppose, with a view of preventing any insult, by their exposed situation; few men being capable of committing brutality in public. This precaution was probably little necessary. The soldiers had mostly been in the trenches two days; they had been engaged in a hard day's work; and their hopes and their rage having then ceased, they were left in a state of languor, by which they were more inclined to seek repose, or cordial refreshments, than to indulge in sensual gratification.

Next day the wounded and bruised of the enemy were collected from the works, and neighbourhood, to which some of them had crept; and the mosque, which had been the great scene of bloodshed, became now a place of refuge, in which these poor creatures had every attention paid to them by the British surgeons.

Buildings.

The town of *Seringapatam* is very poor. The streets are narrower, and more confused, than in any place that I have seen since leaving *Bengal*. The generality of the houses are very mean, although many of the chiefs were well lodged after their fashion; but for European inhabitants their houses are hot and inconvenient. Within the fort, *Tippoo* allowed no person to possess property in houses. He disposed of the dwellings as he thought fit, and on the slightest caprice changed the tenants. A great many of the chiefs fell at *Siddhiswara*, and at the storming of *Seringapatam;* and those who survived, and the families of those who fell (all of whom have been pensioned by the Company), have mostly retired to the dominions of the *Nabob* of *Arcot*, which they consider as more secure

NANDI RAJA,

Maternal Grandfather of the Cartur

and pleasant than *Mysore;* many of the families having originally come from the lower *Carnatic,* and settled here on the establishment of a Mussulman government. Numbers of the houses which had been thus deserted, are now occupied by the officers of the garrison.

Rája of Mysore.

The old palace of the *Mysore Rájas* at *Seringapatam* is in a ruinous condition. At the time of the siege, the family was reduced to the lowest ebb. The old *Rája Crishna,* who was first confined by *Hyder,* died without issue; but left his wife in charge of a relation, whom he had adopted as his son. This young man soon died, not without suspicion of unfair means. His infant son, the present *Rája,* was under the charge of the old lady, and of *Nundi Rája* his mother's father, a respectable old relative, who now superintends his education. Shortly before the siege, the whole family had been stripped, by the merciless *Meer Saduc,* of even the poorest ornaments; and the child, from bad treatment, was so sickly, that his death was expected to happen very soon. This was a thing probably wished for by the Sultan, the family having fallen into such contempt that the shadow of a *Rája* would no longer have been necessary. The family of the *Rája,* having been closely shut up in the old palace, knew very little, during the siege, of what was going forward; and in the confusion of the assault, having been left by their guards, they took refuge in the temple of *Srí Ranga,* either with a view of being protected by the god, or of being defended by the surrounding walls from the attack of plunderers. On the restoration of the prince to the throne of his ancestors, a place for his residence was very much wanted; the necessity of keeping the island of *Seringapatam* for a military station, having rendered the palaces there very unfit for the purpose. *Tippoo,* with his usual policy of destroying every monument of the former government, had razed *Mysore,* and removed the stones of the palace and temples to a neighbouring height, where he was building a fort; which, from its being situated on a place commanding an extensive view, was called *Nazarbar.*

CHAPTER II. May 20, &c. This fortress could have been of no possible use in defending the country, and was probably planned merely with the view of obscuring the fame of *Mysore*, the former capital. At a great expense, and to the great distress of the peasants working at it, the Sultan had made considerable progress in the works of this place, when he began to consider that it afforded no water. He then dug an immense pit, cutting down through the solid black rock to a great depth and width, but without success; and when the siege of his capital was formed, the whole work was lying in a mass of confusion, with a few wretched huts in it for the accommodation of the workmen. Into the best of these, in July last, the young *Rája* was conducted, and placed on the throne. At the same time the rebuilding of the old palace of *Mysore* was commenced. It is now so far advanced, as to be a comfortable dwelling; and I found the young prince seated in it, on a handsome throne, which had been presented to him by the Company. He has very much recovered his health, and, though he is only between six and seven years of age, speaks, and behaves with great propriety and decorum. From Indian *etiquette*, he endeavours in public to preserve a dignified gravity of countenance; but the attentions of Colonel Close, the Resident, to whom he is greatly indebted for that officer's distinguished efforts in his delivery, make him sometimes relax; and then his face is very lively and interesting.

The sovereign *Rája* of *Mysore* is called the *Curtur;* in order to distinguish him from the head of another branch of the family, called also *Rája*, but distinguished by the title of *Dalawai*, or *Putarsu*. The two families generally intermarried; and the power of the *Curtur* was frequently as much controlled by the *Dalawai*, as it was afterwards by *Hyder*. The *Dalawai* family still exists, having been spared by the magnanimity of *Hyder*, although they had attempted to procure his destruction; and they had sunk too low in the estimation of the people, to be objects of *Tippoo's* jealousy. By the Mussulmans, they were in derision called the *Pettahutty*

Rájas; but the head of this branch, a handsome young man, being now pensioned by the *Rája*, and treated by the Resident with respect, the subjects pretend to be ignorant of the appellation *Pettahutty*, and he is spoken of by his proper titles, although he has no authority. Numerous other branches of the *Mysore* family, in the male line, are scattered over the country, and are called *Arsu Mócalu*, or *Raj'bundy*. They are little respected; and few of them are possessed of wealth sufficient to support the appearance of rank.

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Palace in *Seringapatam*.

The palace of the Sultan at *Seringapatam* is a very large building, surrounded by a massy and lofty wall of stone and mud, and outwardly is of a very mean appearance. There were in it, however, some handsome apartments, which have been converted into barracks; but the troops are very ill lodged, from the want of ventilation common in all native buildings. The private apartments of *Tippoo* formed a square, in one side of which were the rooms that he himself used. The other three sides of the square were occupied by warehouses, in which he had deposited a vast variety of goods; for he acted not only as a prince, but also as a merchant.

The Sultan's commerce.

These goods were occasionally distributed among the *Amildars*, or governors of provinces, with orders to sell them, on the Sultan's account, at a price far above their real value; which was done by forcing a share of them upon every man in proportion to his supposed wealth. This was one of the grand sources of oppression, peculation, and defalcation of revenue. The friends, or wealthy corruptors of the *Amildars*, were excused from taking a large share of the goods; while the remainder was forced upon poor wretches, whose whole means, when torn from them, were inadequate to the estimated value of the goods; and the outstanding balances on this account were always large.

Tippoo's sons.

The three sides of the square formerly used as warehouses, are now occupied by the five younger sons of *Tippoo*, who have not yet been removed to *Vellore*. They are well looking boys, and are permitted to ride, and exercise themselves in the square, when they are desirous

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so to do: they are also allowed to view the parade, and to hear the bands of music belonging to the troops in garrison.

The apartment most commonly used by *Tippoo* was a large lofty hall, open in front after the Mussulman fashion, and on the other three sides, entirely shut up from ventilation. In this he was wont to sit, and write much; for he was a wonderful projector, and was constantly forming new systems for the management of his dominions, which, however, he wanted perseverance to carry into execution. That he conceived himself to be acting for the good of his subjects, I have no doubt; and he certainly believed himself endowed with great qualities for the management of civil affairs; as he was at the pains of writing a book on the subject, for the instruction of all succeeding princes: his talents in this line, however, were certainly very deficient. He paid no attention to the religious prejudices of the greater part of his subjects; but every where wantonly destroyed their temples, and gloried in having forced many thousands of them to adopt the Mussulman faith. He never continued long on the same plan; so that his government was a constant succession of new arrangements. Although his aversion to Europeans did not prevent him from imitating many of their arts; yet this does not appear to have proceeded from his being sensible of their value, or from a desire to improve his country; it seems merely to have been done with a view of showing his subjects, that, if he chose, he was capable of doing whatever Europeans could perform: for although he made broad-cloth, paper formed on wires like the European kind, watches, and cutlery, yet the processes for making the whole were kept secret. A French artist had prepared an engine, driven by water, for boring cannon; but so little sensible was the Sultan of its value, that he ordered the water wheel to be removed, and employed bullocks to work the machinery. One of his favourite maxims of policy was, to overthrow every thing that had been done in the *Rája's* government; and in carrying this into practice, he frequently destroyed works

of great public utility, such as reservoirs, and canals for watering the ground. Although an active prince, he in a great measure secluded himself from his subjects (one of the greatest evils that can happen in an absolute monarchy); and his chief confident, *Meer Saduc*, was a monster of avarice and cruelty. The people universally accuse *Tippoo* of bigotry, and vain-glory; but they attribute most of their miseries to the influence of his minister. The *Bráhmans*, who managed the whole of the revenue department, were so avaricious, so corrupt, and had shown such ingratitude to *Hyder*, that *Tippoo* would have entirely displaced them, if he could have done without their services; but that was impossible; for no other persons in the country had any knowledge of business. Instead of checking them by a constant inspection into their conduct, by exemplary punishment when detected in peculation, and by allowing them handsome salaries to raise them above temptation, he appointed Mussulman *Asophs*, or Lord Lieutenants, to superintend large divisions of the country; and this greatly increased the evil; for these men, intirely sunk in indolence, voluptuousness, and ignorance, confident of favour from the bigotry of their sovereign, and destitute of principle, universally took bribes to supply their wants; and the delinquencies of the *Bráhmans* were doubled, to make good the new demands of the *Asophs*, over and above their former profits. Owing to this system, although the Sultan had laid on many new taxes, the actual receipts of the treasury never equalled those in the time of his father. The *Amildars*, under various pretexts of unavoidable emergency, reported prodigious outstanding balances; while they received, as bribes from the cultivators, a part of the deductions so made. Although the taxes actually paid by the people to government were thus much lighter than they had been in the administration of *Hyder*, the industrious cultivator was by no means in so good a condition as formerly. The most frivolous pretexts were received, as sufficient cause for commencing a criminal prosecution against any person supposed to

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be rich; and nothing but a bribe could prevent an accused individual from ruin. *Tippoo* certainly had considerable talents for war; but his fondness for it, and his engaging with an enemy so much his superior in the art, brought on his destruction; while his early habits, of contending with the *Marattah* plunderers, had given him a ferocity and barbarity, that must prevent every considerate person from pitying his overthrow. The policy in which he succeeded best, was in attaching to him the lower Mussulmans. He possessed in the highest degree all the cant, bigotry, and zeal, so well fitted for the purpose, and which some few men of abilities have succeeded in assuming; but with him, I believe, they were natural. None of his Mussulmans have entered into our service, although many of them are in great want; and they all retain a high respect for his memory, considering him as a martyr, who died in the defence of their religion.

Fears for his personal safety.

Though *Tippoo* had thus secured the affections of many of his subjects, and though he was perhaps conscious of good intentions, and fondly imagined that his government was fit to be a pattern to all others; yet whoever sees his private apartments, will be sensible, that the mind of the despotic monarch was torn with apprehension. Such is, perhaps, the universal state of men of this description; and although a knowledge of the circumstance may not be sufficient to prevent the ambitious from grasping at this power, nor to induce the person who has once possessed it to return to the calm of private life; yet it may be some consolation to the persons exposed to its baneful influence, to know, that their ruler enjoys less security and tranquillity of mind than themselves.

Private apartments.

From the principal front of the palace, which served as a revenue office, and as a place from whence the Sultan occasionally showed himself to the populace, the chief entry into the private square was through a strong narrow passage, wherein were chained four tigers; which, although somewhat tame, would in case of any disturbance become unruly. Within these was the hall in which *Tippoo* wrote,

and into which very few persons, except *Meer Saduc*, were ever admitted. Immediately behind this, was the bed-chamber, which communicated with the hall by a door and two windows, and was shut up on every other side. The door was strongly secured on the inside, and a close iron grating defended the windows. The Sultan, lest any person should fire upon him while in bed, slept in a hammock, which was suspended from the roof by chains, in such a situation as to be invisible through the windows. In the hammock were found a sword and a pair of loaded pistols.

Zenána.

The only other passage from the private square was into the *Zenána*, or women's apartments. This has remained perfectly inviolate under the usual guard of eunuchs, and contains about six hundred women, belonging to the Sultan, and to his late father. A great part of these are slaves, or attendants on the ladies; but they are kept in equally strict confinement with their mistresses. The ladies of the Sultan are about eighty in number. Many of them are from *Hindustan Proper*, and many are the daughters of *Bráhmans*, and *Hindu* princes, taken by force from their parents. They have been all shut up in the *Zenána* when very young; and have been carefully brought up to a zealous belief in the religion of Mahomet. I have sufficient reason to think that none of them are desirous of leaving their confinement; being wholly ignorant of any other manner of living, and having no acquaintance whatever beyond the walls of their prison.

Sultan's gardens.

Without the walls of *Seringapatam* are two gardens and palaces, which formerly belonged to the Sultan, but are now occupied by the Commandant of the forces, and by the Resident at the court of *Mysore*. The gardens have been laid out at a considerable expense; and canals from the river afford them a copious supply of water.

Laul Baug.

The palace at the *Laul Baug*, which occupies the lower end of the island, though built of mud, possesses a considerable degree of elegance, and is the handsomest native building that I have ever seen. Near to it stands the *Mausoleum* of *Hyder*, where his son also

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reposes in state. The tombs of both are covered with rich cloths at the Company's expense; and the establishment of *Moulahs* to offer up prayers, and of musicians to perform the *Nobat*, is kept up as formerly. The buildings are handsome of the kind, and are ornamented with mishapen columns of a fine black *hornblende*, which takes a most splendid polish. The other palace and garden,

Durria adaulut Baug. Pictures.

called the *Dúrria adaulut Baug*, was *Tippoo's* favourite retreat from business. Its walls are covered with paintings, which represent the manner in which the two *Mussulman* princes, *Hyder* and *Tippoo*, appeared in public processions; the defeat of Colonel Bailie; and the *costume* of various casts, or professions, that are common in *Mysore*. In these paintings the figures are much in the style of caricatures, although they retain a strong likeness of native countenance and manner. The annexed Drawing (FIGURE 6) of a *Bráhman*, his wife, and child, done by one of the best artists at *Seringapatam*, and fully equal to the paintings on the walls of this palace, will convey to the reader a more exact idea of the progress made there in the art of painting, than words could possibly express.

Finishing used in the palace.

The principal workman employed by Colonel Close in repairing the palace in the *Laul Baug*, gave me the following account of the processes used for finishing the inside of the palaces at *Seringapatam*.

False gilding.

At first sight, one would imagine that much gilding is used in the ornaments; but in truth not a grain of gold is employed. The workmen use a paper covered with false gilding. This they cut into the shape of flowers, and paste these on the walls or columns. The interstices are filled up with oil colours, which are all of European preparation.

The manner of making this false gilded paper is as follows:

Take any quantity of lead, and beat it with a hammer into leaves, as thin as possible. To twenty-four parts of these leaves add three parts of English glue, dissolved in water, and beat them together

Fig 6.

A Brahman with his wife and son.

By a painter of Seringapatam

with a hammer, till they be thoroughly united; which requires the labour of two persons for a whole day. The mass is then cut into small cakes, and dried in the shade. These cakes can at any time be dissolved in water, and spread thin with a hair brush on common writing paper. The paper must then be put on a smooth plank, and rubbed with a polished stone, till it acquire a complete metallic lustre. The edges of the paper are then pasted down on the board, and the metallic surface is rubbed with the palm of the hand, which is smeared with an oil called *Gurna*, and then exposed to the sun. On the two following days the same operation is repeated; when the paper acquires a metallic yellow colour, which, however, more resembles the hue of brass, than that of gold. The *Gurna* oil is prepared as follows: Take three quarters of a *Maund* (about 18 lb.) of *Agashay any* (Linseed oil), half a *Maund* (lb. 12) of the size called *Chunderasu*, and a quarter of a *Maund* (6 lb.) of *Musambra*, or aloes prepared in the country. Boil the oil for two hours in a brass pot. Bruise the *Musambra*; and, having put it into the oil, boil them for four hours more. Another pot having been made red hot, the *Chunderasu* is to be put into it, and will immediately melt. Take a third pot, and, having tied a cloth over its mouth, strain into it the oil and *Musambra*: these must be kept in a gentle heat, and the *Chunderasu* added to them gradually. The oil must be strained again; and it is then fit for use.

The [illegible] is prepared from the milky juice of any of the followi[illegible] *glomerata* [illegible]), *Goni* (a tree which I call *Ficus g*[illegible] *ali*, &c. It is therefore an elastic gum.

The oil used for painting consists of two parts of linseed, and one part of *Chunderasu*.

White washing.

In white washing their walls, over the *chunam* or lime plaster, the workmen of *Seringapatam* first give a thin coat of *Suday*, or fine clay; which is mixed with size, and put on with a hair brush. They next give a coat of whitening made of powdered *Balapum*, or *pot-*

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stone, and then finish with a coat composed of eight parts of *Abracum*, or *mica*, one part of powdered *Balapum*, and one of size. The *Abracum* is prepared from white *mica*, by repeated grindings, the finer particles being removed for use by washing them from the grosser parts. The wall, when finished in this manner, shines like the scales of a fish; and when the room is lighted, has a splendid appearance: but in the day time, the wall white washed with the powdered *potstone* alone, in my opinion, looks better than when washed with either quick lime or *mica*.

Shahar Ganjam.

In the space between the city and the two gardens, the greater part of the island of *Seringapatam* is covered with the ruinous mud walls of the suburb, called *Shahar Ganjam;* and nothing can have a look more dismal and desolate. *Tippoo*, before the siege, had entirely removed the roofs; for he expected that the British army would have taken possession of the island, as they had done under Lord Cornwallis. It must not be supposed, however, that the huts, of which we now see the ruins, have been at any one time all inhabited. They were, in fact, cantonments for the troops, who were removed from one side of the island to another as caprice dictated. In *Shahar Ganjam* a new town is fast rising up, in which the streets are laid down broad and regular. In the old cantonments, the huts had been miserably huddled together.

Population.

According to the register of houses which I received from the *Cutwal*, the fort, or city, contains 4,163 houses, and 5,499 families; and the *Shahar Ganjam* contains 2,216 houses, and 3,335 families. At five inhabitants to each house, we may estimate the population of the city to be 20,815, and of the suburbs 11,080; in all, 31,895 persons. This, however, is independent of a strong garrison and its numerous followers. The principal merchant in the place says, that in the reign of *Tippoo* the island contained 500,000 inhabitants; and he pretends to found his estimate on the quantity of grain consumed. In this calculation, I think he exaggerates grossly; as I see no place where such a number

of persons could have lived. I know also, that the man, in other respects, is not to be trusted. Perhaps we may safely admit the former population of the island to have amounted to 150,000 persons; who were entirely supported by the court and army, scarcely any manufactures having been established. By the removal of the court, and the diminished number of the troops, the inhabitants have been reduced to the necessity of leaving the island; which is still a very inconvenient place for Europeans; all their servants, and the most common artificers, being people from *Madras*, who charge the most extravagant wages. Excellent meat and good vegetables are to be had in abundance; but, bread being dear, the private soldiers are in general under the necessity of eating rice.

Eddagai and *Ballagai*, or left and right sides.

In this country, the division of the people into what are called the left and right hand sides, or *Eddagai* and *Ballagai*, is productive of more considerable effects than at any place that I have seen in India, although among the *Hindus* it is generally known.

The tribes, or casts, comprehended in the *Eddagai*, or left hand side, are nine.

1. *Panchala*, comprehending,
   1. The *Cubbinadava*, or blacksmiths.
   2. *Badiga*, carpenters.
   3. *Cunsugaru*, coppersmiths.
   4. *Cul'badiga*, masons.
   5. *Axala*, gold and silversmiths.
2. *Bheri chitty*, merchants, who pretend to be of the *Vaisya* cast.
3. *Devanga*, a class of weavers.
4. *Heganigaru*, oilmakers, who use two oxen in their mills.
5. *Gollur*, or *Golawanlu*, who transport money.
6. *Paliwanlu* } two tribes of cultivators, who are not of *Karnataca* origin.
7. *Palawanlu* }
8. *Baydaru*, hunters.
9. *Madigaru*, tanners or shoemakers. The *Panchala* command the whole party; and the *Madigaru*, in all disputes, form the most

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The casts forming the *Ballagai*, or right hand side, are eighteen in number.

1. *Banijigaru*, who are of many trades, as well as many religions. The two most conspicuous divisions are,

    1. *Panchum Banijigaru*, who are traders, and wear the *Linga.*
    2. *Teliga Banijigaru*, who worship *Vishnu.*

2. *Wodigaru*, cultivators of the *Súdra* cast, and of *Karnátaca* extraction.

3. *Jotiphana*, oilmakers, who use one bullock in the mill.

4. *Rungaru*, calico printers, and taylors.

5. *Ladaru*, a kind of Mussulman traders, who are followed by all the artificers of the same religion.

6. *Gujerati*, merchants of *Guzerat.*

7. *Camatigaru*, persons who are really of the *Vaisya* cast.

8. *Jainaru*, worshippers of *Jain.*

9. *Curubaru*, shepherds, blanket-weavers, and cultivators.

10. *Cumbaru*, potters.

11. *Agasaru*, washermen.

12. *Besta*; *Palankeen*-bearers.

13. *Padma Shalayvaru*, a kind of weavers.

14. *Naindaru*, barbers.

15. *Uparu*, persons who dig tanks, and build rough walls.

16. *Chitragaru*, painters.

17. *Goallaru*, keepers of cows and buffaloes.

18. *Whalliaru.* The people called *Parriars* at *Madras*, who form the active part of the right hand side, and are commonly called *Ballagai*, their own name being disgraceful. The *Panchum Banijigaru* are the leaders of this division.

It must be observed, that in these lists I have used the *Karnátaca* or *Canarese* language; and almost all the names are in the plural, as

speaking of classes of men. The singular number may in general be obtained by rejecting the final *ru*. I must also observe, that these lists differ, in some respects, from a valuable account of the right and left hand sides, which Colonel Close was so obliging as to communicate. The difference, I suppose, arises partly from his having received the accounts through the medium of the Mussulman language, and partly from his having taken them at *Bangalore*. Mine I received at *Seringapatam*, by means of an interpreter from the *Karnátaca* language; and I have found, that in different places, though at no great distance, there are considerable variations in the customs of the same tribes: a circumstance to which I request the reader's attention. My descriptions of sects are only to be considered as strictly applicable to those of the places where they have been taken. I avoid the Mussulman names; as I find that these people had, in general, very imperfect notions concerning their *Hindu* subjects, and frequently used distinctions to which there was nothing analogous among the aboriginal natives.

The origin of the division of *Hindus* into the right and left hand sides, is involved in fable. It is said to have taken place at *Kunji*, or *Conjeveram*, by order of the goddess *Kali*; and the rules to be observed by each side were at the same time engraved on a copper plate, which is said to be preserved at the temple of that place. The existence of such a plate, however, is very doubtful; both parties founding on its authority their pretensions, which are diametrically opposite. The different casts, of which each division is composed, are not united by any common tie of religion, occupation, or kindred: it seems, therefore, to be merely a struggle for certain honorary distinctions. The right hand side pretend, that they have the exclusive privilege of using twelve pillars in the *pundal*, or shed, under which their marriage ceremonies are performed; and that their adversaries, in their processions, have no right to ride on horseback, nor to carry a flag painted with the figure of *Hanumanta*. The left hand side pretend, that all these

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privileges are confirmed to them by the grant of *Kali* on the copper plate; and that they are of the highest rank, having been placed by that goddess on her left hand, which in India is the place of honour. Frequent disputes arise concerning these important matters; and on such occasions, not only mutual abuse is common, but also the heads of the divisions occasionally stir up the lowest and most ignorant of their followers to have recourse to violence, and encourage them by holding out the houses and shops of their adversaries as proper objects for plunder. A very serious dispute took place at *Seringapatam* since it fell into the hands of the English. Thirty families of the weavers, belonging to the left hand side, joined themselves to the *Teliga Banijigaru,* and were encouraged by them to use all the honorary distinctions claimed by the right hand side. This gave great offence to the *Panchum Banijigaru*, and the *Whalliaru* were let loose to plunder: nor could they be repressed without an exertion of military force, by which several people were killed. In order to preserve the peace of the garrison, and to endeavour to bring the two parties to an agreement, it has ever since been thought expedient to prohibit any marriages from being celebrated within the fort.

Other dissensions among the natives.

Pride is the occasion of another violent dispute for precedency between two casts, the *Panchum Banijigaru*, and the *Camatigaru*, although they are both of the same side. The former allege, that they are the hereditary chiefs of the division; and the *Camatigaru* declare, that they are of a higher cast, as being *Vaisya*, while the others are only *Súdras*. The dispute at present runs very high, and has occasioned some trouble to government.

Hereditary chiefs of casts.

In every part of India with which I am acquainted, wherever there is a considerable number of any one cast or tribe, it is usual to have a head man, whose office is generally hereditary. His powers are various in different sects and places; but he is commonly intrusted with the authority of punishing all transgressions against the rules of the cast. His power is not arbitrary; as he is

always assisted by a council of the most respectable members of his tribe. The punishments that he can inflict are fines and stripes, and above all excommunication, or loss of cast; which to a *Hindu* is the most terrible of all punishments. These hereditary chiefs also, assisted by their council, frequently decide civil causes, or disputes among their tribe; and when the business is too intricate or difficult, it is generally referred to the hereditary chief of the ruling tribe of the side or division to which the parties belong. In this case, he assembles the most respectable men of the division, and settles the dispute; and the advice of these persons is commonly sufficient to make both parties acquiesce in the decision; for every one would shun a man who could be so unreasonable as to refuse compliance. These courts have no legal jurisdiction; but their influence is great, and many of the ablest *Amildars* support their decisions by the authority of government.

Dominions of the *Rája* of *Mysore*. Form of Government.

The dominions of the *Rája* of *Mysore* are now divided into three great districts, or *Subayenas*, called the *Patana*, *Nagara*, and *Chatrakal Subayenas* or *Rayadas*; from the three places where the chief offices or *Cutcheries* are situated. The *Patana* district is by far the largest, and is under the immediate inspection of the *Dewan*, *Purnea*, and of his deputy, *Bucherow*. The *Cutchery* is in *Seringapatam*; and dependent on it are ninety-one *Talucs*, or subdivisions, of which six formerly belonged to *Nagara*. This present district is a much greater extent of territory than ever before was subject to the *Mysore* family; for although they had conquered *Coimbetore*, and though some districts formerly belonging to them, and bordering on the *Bara Mahal*, have been ceded to the Company, yet, beside these six *Talucs* taken from *Nagara*, they never possessed *Sira*, *Bangaluru*, nor *Colar*, which were conquered from Mussulman families by *Hyder*. In addition to this, they have acquired the *Chatrakal Subayena*, containing thirteen *Talucs*; and the *Nagara*, containing nineteen. Each of these districts is under the inspection of a *Subadar*,

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Each *Taluc* is managed by an *Amildar*, who is an officer of justice, police, and revenue; but his authority is very limited; the power of severe punishment, and of revising all civil causes, being reserved to the *Dewan*. The *Amildars* have under them a sufficient number of *Sheristadars*, or accomptants, who in the *Karnátaca* language are called *Parputties;* and the villages under them are managed by *Gaudas*, and *Shanabogas*, called by the Mussulmans *Potails*, and *Curnums*. These two offices are properly hereditary. The *Gauda* is the representative of the *Amildar*, and the *Shanaboga* is the village accomptant. The *Amildars, Parputties*, and *Shanabogas*, are almost universally *Bráhmans*. The *Gaudas* are all *Súdras*.

Taluc of *Patana ashta Gram.*

The *Taluc* or district on the north bank of the *Cávery*, at *Seringapatam*, is called the *Patana ashta Gram;* while that on the south side of the river is called the *Mahásura ashta Gram*. These *Talucs* derive their names from each of them having formerly contained eight *Grams, Gramams*, or villages, granted to *Bráhmans* in *Enaum*, or charity. The country rises gradually on both sides of the river, is naturally fertile, and for some distance from the town is finely watered by noble canals; which, having been taken from the river, follow the windings of the hills, and as they advance horizontally to the eastward, send off branches to water the intermediate space. The water is forced into the sources of these canals by *Anacuts*, or dams, which have been thrown across the river, and formed of large blocks of granite of a prodigious strength, and at a great expense. Desolation, however, is to be seen every where near *Seringapatam*, and has been occasioned partly by invading armies, partly by the precautions of the defenders, and partly by the wanton caprice of *Tippoo;* but still more by the natural effects of his bad system of government. The temples, villages, and dams have been broken down, the canals choked, and every plantation of trees totally ruined, while a great extent has been laid waste for hunting ground. But now every thing wears an aspect of beginning

restoration. The villages are rebuilding, the canals are clearing; and in place of antelopes and forest guards, we have the peaceful bullock returning to his useful labour.

State of Agriculture.

Having assembled some of the most sensible *Gaudas* of the *Ashta gram Talucs*, in the presence of the *Sheristadars* and *Shanabogas*, or lower officers of revenue, who were recommended to me as the men best acquainted with country concerns, I examined them, both at my tents and on the field, concerning their practices in agriculture; and the following is the result of my inquiries.

Three kinds of ground.

The grounds are of three kinds; *wet land*, or that watered artificially, and producing what are called wet crops, or grains; *dry field*, or that which receives no artificial supply of water, and which produces dry crops, or grains; and gardens, or *Bagait*.

Soils.

The soil of the *ashta gram* is considered as of four different kinds, the fertility of which is great according to the order in which they are enumerated. First, a very black soil containing a large proportion of clay, and called *Eray*, *Crishna*, or *Mucutu*. Secondly, a very red soil, containing also a large proportion of clay, and called *Cabbay* or *Kempu bumi*. These two sometimes contain a few small pebbles, or loose rounded stones, without injuring the quality of the land. Thirdly, *Marulu* is a light brown coloured soil, with a large proportion of sand. This also may contain loose nodules of stone without injury to its quality. Fourthly, *Daray*, which consists of much sand, and angular nodules of stone so compacted that the plough penetrates it with difficulty: to avoid circumlocution, I shall frequently use these native terms.

Watered crops.

The articles which the *ashta gram* farmers cultivate in *wet grounds* are, rice, sugar-cane, *Udu*, *Hessaru*, *Wull' Ellu*, and *Tadaguny*. Of these, rice is the one of by far the greatest importance.

Two crops.

The farmers of the *ashta gram* have annually two crops on their wet grounds; one crop grows daring the rainy season, and is called *Hainu*, and also the male crop, being supposed to be the stronger; the other crop is called *Caru*, and female, and grows in the dry

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season. The grounds are of course formed into terraces, quite level, and surrounded by little banks for the purpose of irrigation. The plots of watered ground, owing to the considerable declivity of the country, are very contracted, and irregular in shape: but by means of small channels leading from the grand canals, or from reservoirs, they can, at the pleasure of the cultivator, be either filled with water, or allowed to be dry.

Irrigation.

The tanks or reservoirs not being numerous in the *ashta gram*, and the canals being completely filled from the river in the rainy season only, the *Hainu* crop of rice is by far the most copious. The small supply of water in the dry season is reserved chiefly for sugar-cane. If attention were paid to construct reservoirs for the preservation of the water that is lost from the canals in the rainy season, much of the ground would annually give two crops of rice.

Different manners of sowing rice.

Throughout India there are three modes of sowing the seed of rice, from whence arise three kinds of cultivation. In the first mode, the seed is sown dry on the fields that are to rear it to maturity: this I call the *dry seed* cultivation; at *Seringapatam* it is called the *Bara butta*, or *Puneji*. In the second mode, the seed is made to vegetate before it is sown; and the field, when fitted to receive it, is reduced to a puddle: this I call the *sprouted cultivation;* at *Seringapatam* it is called the *Mola butta.* In the third kind of cultivation, the seed is sown very thick in a small plot of ground; and, when it has shot up to about a foot high, the young rice is transplanted into the fields where it is to ripen: this I call the cultivation by *transplanting;* the farmers of the *ashta gram* call it *Nati.*

The kinds of rice cultivated here are as follow:

NAMES.	Months required to ripen.	Season for sowing.	Modes of Cultivation.
1 *Doda Butta* - -	7	Both	*Puneji*, *Mola*, both kinds of *Nati*.
2 *Hotay Caimbuti*	5½	*Hainu*	ditto ditto ditto.
3 *Arsina Caimbuti*	5½	ditto	ditto and *Barra'agy Nati*.
4 *Sucadass* - - -	5½	ditto	ditto and *Mola*.
5 *Murargilli* - -	5½	ditto	*Mola*.
6 *Yalic Raja* - -	5½	ditto	*Puneji*.
7 *Conawaly* - -	5½	ditto	ditto and *Mola*.
8 *Bily sana butta* -	5½	ditto	ditto ditto.
9 *Puttu butta* -	5½	Both	*Mola* and *Nir'agy Noti*.
10 *Caracullu* - -	5½	*Caru*	ditto ditto.

Different kinds of rice.

I attempted to ascertain, whether the different kinds of cultivated rice ought to be considered as different species, or merely as varieties; but I soon found, that for a traveller this was impracticable. Among the natives, even with such as speak the same language, the greatest confusion prevails; for the same name, in different parts of the country, is applied to distinct kinds of rice; while in one village even the same kind of rice acquires two or more names, from a dissimilar season, or mode of cultivation. Thus in the *Ashta grams*, the same kind of rice, when raised in the *Caru* crop, is called *Doda cassery*; which, when raised, in the *Hainu* crop, is called *Doda butta*. Although I by no means presume to be certain, yet, from the dissimilitude of appearance, and from the difference of soil, cultivation, and time of coming to maturity, required by the various kinds of rice, I am inclined to think, that the *Oryza sativa* of Linnæus actually comprehends several species, as

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distinct as the different kinds of barley, or *Hordeum*, that are cultivated in Europe.

May 20, &c. *Hainu* crop of rice.

The *Hainu* cultivation of rice, being here the principal crop, shall engage the chief part of our attention.

Selection of modes of cultivation.

The higher fields are cultivated after the *dry seed* manner of sowing; the lower grounds are reserved for the *sprouted* and *transplanted* cultivations. By far the most common seed used is the *Doda butta*, a coarse grain, like that which, in *Bengal*, is by the English called *cargo rice*.

Dry seed.

In the *Hainu* crop the following is the management of the dry seed cultivation. During the months *Phalguna*, *Chaitra*, and *Vaisakha*, that is, from the 14th of February till the 23d of May, plough twice a month; having, three days previous to the first ploughing in *Phalguna*, softened the soil by giving the field water. After the fourth ploughing, the field must be manured with dung, procured either from the city or cow-house. After the fifth ploughing, the field must be watered, either by rain, or from the canal; and three days afterwards the seed must be sown broad-cast, and then covered by the sixth ploughing. Any rain, that happens to fall for the first thirty days after sowing the seed, must be allowed to run off by a breach in the bank which surrounds the field; and should much rain fall at this season, the crop is considerably injured. Should there have been no rain for the first thirty days, the field must be kept constantly inundated, till the crop be ripe; but if there have been occasional showers, the inundation should not commence till the 45th day. Weeding, and loosening the soil about the roots of the young plants with the hand, and placing them at proper distances, where sown too close, or too far apart, must be performed three times; 1st, on the 45th or 50th day; 2dly, 20 days afterwards; and 3dly, 15 days after the second weeding. These periods refer to the crops that require seven months to ripen. In rice which ripens in $5\frac{1}{2}$ months, the field must be inundated on the 20th day; and the weedings are on the 20th, 30th, and 40th days.

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Sprouted seed.

In the *Hainu* crop the following is the manner of conducting the sprouted-seed cultivation. The ploughing season occupies the month of *Ashadha*, or from the 23d of June till the 22d of July. During the whole of this time the field is inundated, and is ploughed four times; while, at each ploughing, it is turned over twice in two different directions, which cross each other at right angles. This I shall call a double ploughing. About the 1st of *Srávana* (22d July), the field is manured, immediately gets a fifth ploughing, and the mud is smoothed by the labourers' feet. All the water, except one inch in depth, must then be let off, and the prepared seed must be sown broad-cast. As it sinks in the mud, it requires no labour to cover it. For the first twenty-four days, the field must once every other day have some water, and must afterwards, until ripe, be kept constantly inundated. The weedings are on the 25th, 35th, and 50th days. In order to prepare the seed, it must be put into a pot, and kept for three days covered with water. It is then mixed with an equal quantity of rotten cow-dung, and laid in a heap, in some part of the house, entirely sheltered from the wind. The heap is well covered with straw and mats: and at the end of three days, the seed, having shot out sprouts about an inch in length, is found fit for sowing. This manner of cultivation is much more troublesome than that called *dry-seed:* and the produce from the same extent of ground is in both nearly equal; but the *sprouted-seed* cultivation gives time for a preceding crop of pulse on the same field, and saves a quarter of the seed.

Transplanted rice.

Two distinctions are made in the manner of cultivating *transplanted* rice: the one called *Barra'agy*, or *dry-plants;* and the other called *Nir'agy*, or *wet-plants.* For both kinds low land is required.

Dry seedlings.

The manner of raising the *Barra'agy*, or *dry seedlings*, for the *Hainu* crop, is as follows: Labour the ground at the same season, and in the same manner, as for the *dry-seed* crop. On the first of *Iyaishtha*, or 24th of May, give the manure, sow the seed very

thick, and cover it with the plough. If no rain fall before the 8th day, then water the field, and again on the 22d; but, if there are any showers, these waterings are unnecessary. From the 45th till the 60th day, the plants continue fit to be removed. In order to be able to raise them for transplanting, the field must be inundated for five days, before they are plucked.

The ground on which the *dry-seedlings* are to be ripened, is ploughed four times in the course of eight weeks, commencing about the 15th of *Iyaishtha*, or 7th of June; but must, all the while, be inundated. The manure is given before the 4th ploughing. After this, the mud having been smoothed by the feet, the seedlings are transplanted into it, and from three to five plants are stuck together, into the mud, at about a span distance from the other little branches. The water is then let off for a day: afterwards, the field, till the grain is ripe, is kept constantly inundated. The weedings are performed on the 20th, 35th, and 45th days after transplanting.

Watered seedlings.

The manner of raising the *Nir-agy*, or *wet-seedlings*, for the *transplanted* crop in the *Hainu* season, is as follows: In the month *Phalguna* (14th February to 14th March) plough the ground three times while it is dry. On the 1st of *Iyaishtha*, or 24th of May, inundate the field; and in the course of fifteen days plough it four times. After the 4th ploughing smooth the mud with the feet, sow the seed very thick, and sprinkle dung over it: then let off the water. On the 3d, 6th, and 9th days, water again; but the water must be let off, and not allowed to stagnate on the field. After the 12th day, inundate until the seedlings be fit for transplantation, which will be on the 30th day from sowing.

The cultivation of the field into which the seedlings are transplanted, is exactly the same as that for the *dry-seedlings*.

The plot on which the seedlings are raised produces no crop of pulse; but various kinds of these grains are sown on the fields that are to ripen the *transplanted* crop, and are cut down immediately

before the ploughing for the rice commences. The produce of the *transplanted* crop is nearly equal to that of the *dry seed cultivation;* and on a good soil, properly cultivated, twenty times the seed sown is an average crop.

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Caru crop three seasons.

The *Caru* crops, according to the time of sowing, are divided into three kinds. When the farm is properly stocked, the seed is sown at the most favourable season, and the crop is then called the *Cumba Caru;* but if there be a want of hands, or cattle, part of the seed is sown earlier, and part later than the proper season; and then it produces from 30 to 50 per cent. less than the full crop. When sown too early, the crop is called *Tula Caru;* when too late, it is called *Maysha Caru.* The produce of the *Hainu* and *Cumba Caru* crops is nearly the same.

Dry seed.

No *Tula Caru dry seed* is ever sown. The ploughing season for the *Cumba Caru dry seed* begins in *Bhádrapada,* or 21st August, and the seed is sown about the end of *Márgasirsha,* or 16th December. In the *Maysha Caru dry seed,* the ploughing commences on the 1st of *Chaitra,* or 26th of March, and the seed is sown at the feast of *Chaitra Purnama,* or 9th of April.

Sprouted seed.

The *Tula Caru sprouted seed* is sown on the 1st *Kártika,* 19th October, the ploughing having commenced with the feast *Navarátri,* 19th September. The *Cumba Caru* sprouted seed is sown about the 16th of *Pushya,* or 1st of January. The ploughing season occupies a month. The ploughing for the *Maysha Caru* sprouted seed commences about the 15th of *Chaitra.* The seed is sown about the 16th of *Vaisákha,* or 9th of May.

Transplanted.

The *Cumba Caru transplanted rice* is cultivated only as *watered seedlings.* The ground for the seedlings begins to be ploughed in the end of *Kártika,* (16th November), and the seed is sown on the 15th *Pushya,* or 30th December. The fields, on which this crop is ripened, are begun to be ploughed in the middle of *Márgasirsha,* (1st December). The transplanting takes place about the 15th of *Mágha,* or 29th of January. The *Tula Caru transplanted rice* also is

sown *Niragy* about the 30th of *Asuja*, or 18th of October, and in a month afterwards is transplanted. The *Maysha Caru* transplanted rice is also sown as *watered seedlings*, about the 15th of *Vaisákha*, or 8th of May, and about a month afterwards is transplanted.

Advantages of the different crops.

The regular *Caru* crop of the transplanted cultivation, does not interfere with a preceding crop of pulse; but this is lost, when from want of stock sufficient to cultivate it at the proper time, the early or late seasons are adopted. But the various modes of cultivating the rice gives a great advantage to the farmer; as by dividing the labour over a great part of the year, fewer hands and less stock are required to cultivate the same extent of ground, than if there was only one seed time, and one harvest.

Rice harvest.

The manner of reaping and preserving all the kinds of rice is nearly the same. About a week before the corn is fit for reaping, the water is let off, that the ground may dry. The corn is cut down about four inches from the ground with a reaping-hook, called *Cudugalu*, or *Cudagu*. (Plate II. Fig. 2.) Without being bound up in sheaves, it is put into small stacks, about twelve feet high; in which the stalks are placed outwards, and the ears inwards. Here the corn remains a week, or, if it rain, fourteen days. It is then spread out on a thrashing-floor, made smooth with clay, cow-dung, and water; and is trodden out by driving bullocks over it. If there has been rain, the corn, after having been thrashed, must be dried in the sun; but in dry weather this trouble is unnecessary. It is then put up in heaps called *Rashy*, which contain about 60 *Candacas*, or 334 bushels. The heap, as I have before mentioned, is marked with clay, and is carefully covered with straw. A trench is then dug round it, to keep off the water. For twenty or thirty days, till the division of the crop between the government and the cultivator takes place, the corn is allowed to remain in the heap.

Manner of preserving rice.

The grain is always preserved in the husk, or, as the English in India say, in *Paddy;* the term rice being appropriated to the grain separated from the husks, a distinction which I shall always observe.

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There are in use here various ways for keeping *Paddy*. Some preserve it in large earthen jars that are kept in the house. Some keep it in pits called *Hagay*. In a hard stony soil, they dig a narrow shaft, fifteen or sixteen cubits deep. The sides of this are then dug away, so as to form a cave, with a roof about two cubits thick. The floor, sides, and roof, are lined with straw; and the cave is then filled with *Paddy*. These pits contain from fifteen to thirty *Candacas*, or from 83½ to 167 Winchester bushels. When the *Paddy* is wanted to be beaten out into rice, the whole pit must at once be emptied. Other people again build *Canajas*, or store-houses, which are strongly floored with plank, to keep out the *Bandicoots*, or rats. In these store-houses there is no opening for air; but they have a row of doors, one above another, for taking out the grain, as it is wanted. Another manner of preserving grain is in small cylindrical stores, which the potters make of clay, and which are called *Woday*. The mouth is covered by an inverted pot; and the *Paddy*, as wanted, is drawn out from a small hole at the bottom. Finally, others preserve their *Paddy* in a kind of bags made of straw, and called *Mudy*. Of these different means the *Canaja* and *Woday* are reckoned the best. *Paddy* will keep two years without alteration, and four years without being unfit for use. Longer than this does not answer, as the grain becomes both unwholesome and unpalatable. No person here attempts to preserve rice any length of time; for it is known by experience to be very perishable. All the kinds of *Paddy* are found to preserve equally well. That intended for seed must be beaten off from the straw as soon as cut down, and dried for three days in the sun; after which it is usually kept in straw-bags.

Manner of preparing rice for use by soaking.

There are two manners of making *Paddy* into rice; one by boiling it previously to beating; and the other by beating alone. The boiling is also done in two ways. By the first is prepared the rice intended for the use of *Rájas*, and other luxurious persons. A pot is filled with equal parts of water and *Paddy*, which is allowed to soak all night, and in the morning is boiled for half an hour. The

Paddy is then spread out in the shade for fifteen days, and afterwards dried in the sun for two hours. It is then beaten, to remove the husks. Each grain is broken by this operation into four or five pieces, from whence it is called *Aydu nugu aky*, or five-piece rice. When dressed, this kind of rice swells very much. It is always prepared in the families of the *Rájas*, and is never made for sale. The operation is very liable to fail; and in that case the rice is totally lost.

By boiling.

Rice prepared by boiling in the common manner is called *Cudapal aky*, and is destined for the use of the *Súdras*, or such low persons as are able to procure it. Five parts of *Paddy* are put into a pot with one part of water, and boiled for about two hours, till it is observed that one or two of the grains have burst. It is then spread out in the sun for two hours; and this drying is repeated on the next day; after which the *Paddy* is immediately beaten. Ten parts of *Paddy*, by this operation, give five parts of rice, of which one part goes to the person who prepares it, for his trouble. Ten *Seers* of *Paddy* are therefore equal in value to only four *Seers* of rice.

Without boiling.

The rice used by the *Bráhmans*, and called *Hashy aky*, is never boiled. On the day before it is to be beaten, the *Paddy* must be exposed two hours to the sun. If it were beaten immediately after being dried, the grain would break, and there would be a considerable loss. Even with this precaution, many of the grains break; and, when these are separated from the entire rice to render it saleable, the *Hashy aky* sells dearer than the *Cudapal aky*, in the proportion of nine to eight.

Manner of beating.

The beating is performed chiefly by women. They sometimes, for this purpose, use the *Yata*, which is the same with the *Danky* of *Bengal;* or a block of timber fastened to a wooden lever, which is supported on its centre. The woman raises the block by pressing with her foot on the far end of the lever, and by removing her foot allows the block to fall down on the grain. The more common way, however, of beating *Paddy*, is by means of a wooden pestle, which

is generally about four feet in length, and three inches in diameter, which is made of heavy timber, and shod with iron. The grain is put into a hole formed in a rock or stone. The pestle is first raised with the one hand, and then with the other; which is very hard labour for the *Hindu* women, who in general are rather delicately formed.

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Different crops in one year.

So far as I have observed in *Mysore*, ground, once brought into cultivation for rice, is universally considered as arrived at the highest possible degree of improvement; and all attempts to render it more productive by a succession of crops, or by fallow, would be looked upon as proofs of insanity. Where there is a supply of water, the farmers in general think, that the best plan of cultivation is to sow one crop of rice, immediately after another has been reaped; and in many parts, favoured with a supply of water, three crops of rice are every year regularly produced. In the *Ashta grams*, however, there is no such land; and though some parts each year give two crops of rice, by far the greater part of the irrigated lands have too small a supply of water to ripen two crops of rice; and the farmer must content himself with one crop of that valuable article, and another of some kind of pulse, or other *dry grain*. Even this crop is frequently prevented by some of the operations attending the cultivation of rice, as I have had several times occasion to mention; but still it is of considerable importance. The articles of which it consists are *Udu*, *Hessaru*, *Wull' Ellu*, and *Tadaguny*.

The *Udu* is of two kinds; *Chic'udu*, and *Dod'udu;* or little, and large *Udus*.

The *Chic'udu* seems to be a variety, with black seeds, of the *Phaseolus minimoo* of Dr. Roxburgh. From the season in which it ripens, it is also called *Car'udu*. It is the *Minamolu* of the *Telingas*, the *Sir ulandu* of the *Tamuls*, the *Mash* of the *Decany* Mussulmans, the *Wudied* of *Kankána*, and the *Ticory Colai* of the *Bengalese*. It is cultivated as follows: The ploughing commences ten days after the feast *Sivaratri*, which this year happened on the 12th of February,

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and lasts for fifteen days, or until the 9th of March. Previous to the first ploughing, if there has not recently been any rain, the field must have a little water, and then it is three times ploughed. The seed is sown immediately before the third ploughing, by which it is covered. This crop obtains neither water, manure, nor weeding. The straw, when ripe, is pulled up by the roots, stacked for three days, dried two days in the sun, and then trodden out by bullocks. The flour, made into cakes, and fried in oil, is here a common article of diet. It is also mixed with rice flour, and made into white cakes called *Doshy*, which are also fried in oil, and are a favourite food. The straw is reckoned pernicious to cattle. It is thrown on the dunghill, and serves to increase the quantity of manure. The grain is always preserved in the *Mudy*, or straw bag.

Dod'udu.

The *Dod'udu*, or great *Udu*, is called also *Hain'udu*. I had no opportunity of examining it in a state proper for ascertaining its place in the botanical system; but I have no doubt of its being the *Phaseolus minimoo* of Dr. Roxburgh. It is cultivated and managed exactly like the other kind; but the first ploughing is on the 8th day after the *Swarna Gauri vrata*, which this year happened on the 23d of August. The sowing season is 15 days afterwards; that is, about the 15th of September. The straw is equally pernicious to cattle, but the grain is reckoned better than that of the *Chic'udu*.

Phaseolus Mungo.

The *Hessaru* is the *Phaseolus Mungo* of the botanists, a barbarous name derived from the *Mung* of the Mussulmans, and of *Kankána*. In the *Telinga* language it is called *Pachy Pessaru*; and in the dialect of the *Tamuls*, *Pacha Pyru*. It is of one kind only, but is cultivated both as a *Hainu* and as a *Caru* crop: in both of which the manner of cultivation is exactly the same as that of the *Udus*. The straw, being equally unfit for cattle, is reserved for manure. The grain is dressed as *Curry*.

Dolichos Catsjang.

The *Tadaguny* is the *Dolichos Catsjang* of Linnæus, who has here

introduced a most barbarous appellation. In the *Telinga* language, it is called *Alasunda*. It is the *Bobra* and *Choni* of the Mussulmans, the *Caramuny* of the *Tamuls* of *Madras*, the *Tata Pyru* of *Coimbetore*, the *Bily Hessaru* of *Haiga*, and the *Cauli* of *Kankána*. Of this grain, there is but one kind, and it is cultivated only as a *Caru* crop, which is performed exactly in the same manner with that of the *Car'udu*. The green pods, and ripe grain, are both made into *Curries*, as is usual here, by frying them in oil with tamarinds, turmeric, onions, capsicum, and salt. Horses eat the grain; but the straw is only useful as manure.

Sesamum.

Wull'Ellu is the *Sesamum orientale;* and one kind only is cultivated here. The *Indicum,* however, is to be met with in some places not far distant, and is called the *Phulagana Ellu*. It is raised exactly like the *Car'udu*, cut down when ripe, and stacked for seven days. It is then exposed to the sun for three days, but at night is collected again into a heap; and, between every two days drying in the sun, it is kept a day in the heap. By this process the capsules burst of themselves, and the seed falls down on the ground. The cultivators sell the greater part of the seed to the oil-makers. This oil is here in common use with the natives, both for the table and for unction. The seed is also made into flour, which is mixed with *Jagory*, and formed into a variety of sweet cakes. The straw is used for fewel and for manure.

Sugar-cane kinds.

A considerable quantity of sugar-cane is cultivated by the farmers of the *Ashta gram*. It is of two kinds, *Restali*, and *Puttaputti*. Both yield *Bella*, or *Jagory;* but the natives can extract sugar from the *Puttaputti* alone. The *Jagory* of the latter is also reckoned the best. The *Restali* can only be planted in *Chaitra;* the *Puttaputti* may also be planted in *Srávana*, or *Mágha*. The crop of *Restali* is over in a year; that of *Puttaputti* requires fourteen months, but may be followed by a second crop, or, as is said in the *West Indies*, by a crop of *Ratoons*, which require twelve months only to ripen. The *Restali* will not survive for a second crop. This is

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the original sugar-cane of the country: the *Puttaputti* was introduced from *Arcot* by *Mustaph'Aly Khan*, who in the reign of *Hyder* was *Tosha Khany*, or Paymaster General. The cultivation of *Restali* has ever since been gradually declining.

Cultivation.

When the ground is to be cultivated for sugar-cane, it is watered three days, and then for the same length of time it is allowed to dry. During the next eight days it must be ploughed five times, and the clods must be beaten small with a kind of pick-ax, called *Col Kudali* (see PLATE II. Fig. 3.). The field must then be manured, and ploughed a sixth time. The ground now rests fifteen days; after which, in the course of one or two days, it must be ploughed twice, and then be allowed eight days more rest. It is afterwards ploughed a ninth time. These operations occupy forty-four days; six more are employed in planting the cane, which is done by the instrument called *Yella Kudali* (see PLATE II. Fig. 4.). With this the field is divided into beds of about six cubits wide, see (a) Fig. 7. These beds are separated by small trenches (b), which are about fourteen inches wide, and eight deep. In every alternate trench are dug small wells (c) about two feet deep. The water from the canal flows through all the trenches, and, a quantity of it lodging in these wells, is taken out with pots for watering the plants by the hand. Across every bed, at the distance of a cubit, are dug five holes (d) about six inches in diameter, and three in depth. In each of these are placed horizontally two cuttings of the cane, each containing three joints. These are covered slightly with earth, over which is laid some dung. When the cane is planted in *Chaitra*, the trenches must be filled with water from the tank, and every hole must be watered by pots. At the other seasons the trenches are full, it being the rainy weather; but even then, for one month, the holes containing the canes must daily be watered by the hand. The earth in the holes is then stirred up with a stick, and a little dung is added. Next month the daily watering must be continued, and at the end of it the whole field must be dug up with the *Yella*

Kudáli; and round every cluster of young canes there must be formed by the hand a small cavity, into which a little dung is to be put. In the third month the canes must be watered every other day. At the end of the third month, if the canes have grown with luxuriance, the field must be dug over again with the *Yella Kudáli;* but, if they are rather stunted, the watering must be continued all the fourth month, before they get the third weeding. At this time, the earth, at the roots of the cane, is heaped up into ridges crossing the beds at right angles to the trenches. Afterwards, no water is given immediately to the plants, but for three days the trenches must be kept full. It is then let out for a week. If there be rain, there is no occasion for more watering; but, if it be dry weather, the trenches, for a month, must be filled with water one day in the week. Then the weeding with the *Yella Kudáli* must be repeated, and the earth must be smoothed with the hand, and placed carefully round the canes. The young shoots from each hole will be now ten or twelve in number; those which are sickly must be cut off; and the healthy, which are about a cubit long, must be tied up with a leaf of the plant into bundles of two or three, in order to prevent them from spreading too much. Should there be no rain, the trenches must, once in fifteen days, be filled with water, till the canes, having grown higher, again require to be tied together. In a month after the first tying, they ought to be two cubits high. When the plants are eight months old, they will have grown another cubit, and will require another tying. The farmer now begins to repair his apparatus for making *Jagory:* the *Alay munny,* or boiling-house; the *Gana,* or mill; the *Copriga,* or boiler; the *Utsu,* or mould; the *Cunu,* or cooler; the *Goarmuny,* or ladle; and the *Chebalu,* or skimmer. In the eleventh month he begins to cut the *Restali,* and the crop must be finished within the year. The *Puttaputti* is ripe in twelve months, and two months may be allowed for cutting it.

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Ratoon crop.

If it be intended to keep the field of *Puttaputti* for a second year's crop, the dry leaves which are cut off at crop season must be burned on the spot, and the whole field must be dug with the *Yella Kuddli.* The trenches must then be filled with water, and for six months the watering must be continued once in eight or ten days, unless there be rain. The weedings, during this time, ought to be three; at each of which dung ought to be given. At the end of six months, the canes having grown one cubit high, the weakly plants must be removed, and the strongest tied up, as in the first crop. The manner of conducting the two crops after this is quite similar. The canes of the second crop must be all cut within the year.

Soil fit for sugar-cane.

Mucutu, or black clay, is the best soil for both kinds of sugar-cane; but it is reserved for the *Puttaputti.* The *Cabbay,* or red earth, answers for the *Restali,* which does not require such a strong soil. The two inferior soils do not by any means answer for this production. The crop of rice immediately succeeding sugar-cane is very bad; the second returns to its usual quantity; but the sugar-cane is never again repeated on the same ground, till three crops of rice have intervened. The roots and tops of the cane are burned for boiling the *Jagory.* The ashes are reckoned injurious to any soil on which they may be laid; but this is certainly a prejudice. Sugar-cane is never cultivated without manuring.

Produce of watered land.

Having neglected, at my first visit to *Seringapatam,* to obtain an account of the produce of the various crops of watered land, on my second visit I called together some respectable *Gaudas,* in presence of the *Amildar,* and of a well informed *Sheristadar.* I then measured a field, said by them to contain a *Candaca* of land, or as much as ought to sow 280 *Seers* of rice, and found it to be 6$\frac{1}{7}$ acres; on which, joined to their report concerning the quantity of seed required, and the return produced by a *Candaca* of land, I found the following calculations:

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NAMES.	Seed per Acre.		Produce per Acre.		Increase on one seed.
	Bushels.	Gallons. Decimals.	Bushels.	Gallons. Decimals.	
Rice *Mola* cultivation	1	4.57	31	3.40	20
Udu - - - - - - -	0	4.0	7	6.86	15
Hessaru - - - - - -	0	4.0	7	6.86	15
Wull' Ellu - - - - -	0	0.898	3	7.43	35

Of sugar-cane one acre plants 2420 holes, and produces 10,890 ripe canes, which yield 16¾ cwt. of *Jagory*.

The produce of rice by every mode of cultivation is nearly the same.

In the *Ashta grams* the articles cultivated on *dry field* are as follow:

Produce of dry field.

NAMES.	Seed per Acre.	Produce per Acre.	Increase on one seed.
	Gallons. Decimal parts.	Bushels. Decimal parts.	
Ragy - - - - - -	3.568	23.35	52½
Avaray - - - - - -	0.892	0.889	8
Tovary - - - - - -	0.892	0.889	8
Harica - - - - - -	3.568	15.56	30
Navonay - - - - -	3.568	15.56	30
Shamay - - - - - -	3.568	15.56	30
Chica Cambu - - -	- - -	- - -	- - -
Jola - - - - - - -	0.892	15.56	120
Huruli - - - - - -	3.568	15.56	30
Carlay - - - - - -	- - -	- - -	- - -
Harulu - - - - - -	- - -	- - -	- - -
Huts' Ellu - - - -	0.892	1.12	10
Wull' Ellu - - - -	1.784	1.334	12

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The estimate of seed, and produce of an acre, I obtained by taking three sensible farmers to a small field, and asking them how much seed it would require, and how much it would produce. No revenue officer was present, nor did the field belong to any of the farmers. I then measured the field, and reduced the measures to the English statute acre and the Winchester bushel. Not having been entirely satisfied with this manner of ascertaining the produce, on my return to *Seringapatam* I questioned the same persons on this subject, that I had interrogated respecting the *wet crops*. I made them show me what they considered as a *Wocula* of dry field; that is to say, the land, on which a *Wocula* or *Colaga* of *Ragy* should be sown. On measuring it, I found that it was $1\frac{15}{100}$ acre; and they said that the produce ought to be two *Candacas*, besides the *Avaray* and *Tovary*. This makes the seed required for an acre to be $3\frac{389}{1000}$ gallons, the produce $19\frac{1}{2}$ bushels, and the increase on the seed forty fold. All these numbers are less than those stated in the table, and may be taken as the average produce; the other calculation implying a favourable season and soil, with good management.

Ragy, or the *Cynosurus Corocanus*, kinds.

The *Ragy*, by Linnæus, is named *Cynosurus Corocanus*. The *Decany* Mussulmans call it *Ragy*. In the *Tamul* language, it is called *Kevir*. The farmers reckon three kinds of it, which, however, are only varieties; the *Cari*, *Kempu*, and *Huluparia*: all are equally productive; but the third, when nearly ripe, is very apt to shake the seed. In the vicinity of *Seringapatam*, it is not customary to keep the kinds separate; in the same field all the three are sown intermixed; but in some places, at no great distance, more attention is paid to the quality of the grain.

Cultivation.

The ploughing commences whenever the first occasional showers in spring have softened the soil sufficiently to receive the plough. From that period till the 13th of *Iyaishtha*, or 5th of June, the field is ploughed from four to six times, according as it may be found clean or foul. The dung is then given, and ploughed into the

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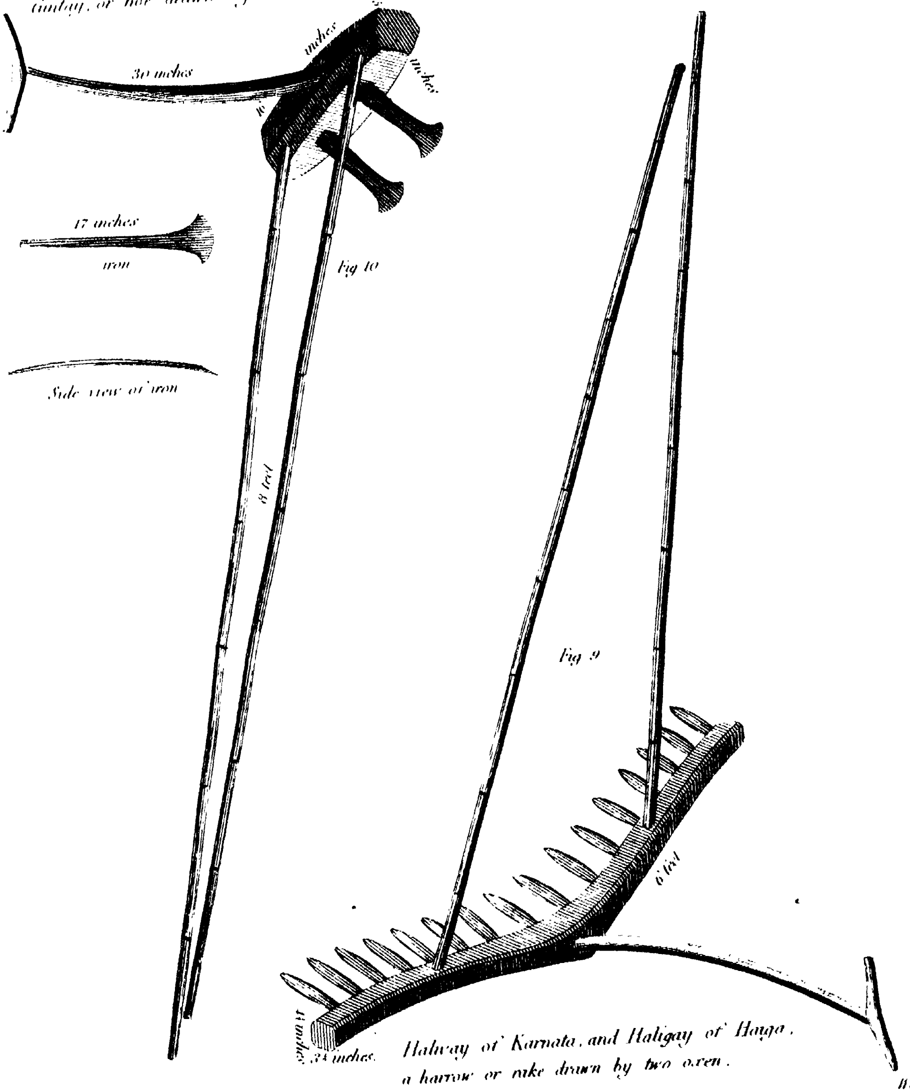

Halway of Karnata, and Haligay of Haiga,
a harrow or rake drawn by two oxen.

Warner sc

soil. When the rains begin to be heavy, the seed is sown broadcast, and covered by the plough. The field is then smoothed with the *Halivay*, which is a harrow, or rather a large rake drawn by two bullocks, (see Fig. 9.) Then, if sheep are to be had, a flock of them is repeatedly driven over the field, which is supposed to enable it to retain the moisture; and for this purpose bullocks are used, when sheep cannot be procured. Next day, single furrows are drawn throughout the field, at the relative distance of six feet. In these is dropt the seed of either *Avaray* or *Tovary*, which are never cultivated by themselves; nor is *Ragy* ever cultivated, without being mixed with drills of these leguminous plants. The seed of the *Avaray* or *Tovary* is covered by the foot of the person who drops it into the furrow. Fifteen days afterwards, the *Cuntay*, or bullock-hoe, (see Fig. 10,) is drawn all over the field; which destroys every young plant that it touches, and brings the remainder into regular rows. On the 35th day the *Cuntay* is drawn again, at right angles to its former direction. On the 45th day it is some times drawn again; but, when the two former ones have sufficiently thinned the young corn, this third hoeing is not necessary. At the end of the second month, the weeds should be removed by a small iron instrument called *Ujary* (see PLATE II. Fig. 5). According to the quantity of rain, the *Ragy* ripens in from three to four months. The *Avaray* and *Tovary* do not ripen till the seventh month. The reason of sowing these plants along with the *Ragy* seems to be, that the rains frequently fail, and then the *Ragy* dies altogether, or at least the crop is very scanty; but in that case the leguminous plants resist the drought, and are ripened by the dews, which are strong in autumn. When the *Ragy* succeeds, the leguminous plants are oppressed by it, and produce only the small return which is mentioned in the above list; but when the *Ragy* fails, they spread wonderfully, and give a very considerable return.

Use of *Ragy* in diet.

The crop of *Ragy* is by far the most important of any raised on

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dry field, and supplies all the lower ranks of society with their common food. Among them, it is reckoned the most wholesome and invigorating food for labouring people; and in every country, most fortunately, a similar prejudice appears to prevail, the most common grain being always reckoned the nourishment most fit for the labourer. Habit seems to be able to render every kind of grain sufficiently wholesome; but the stomach is not able, without inconvenience, to bear a change. Hence the labourer, accustomed to live on the cheapest grain of the country, finds it agree with his stomach; but he becomes disordered when first compelled or induced to try another food. He therefore very naturally concludes, that his usual fare is the most wholesome; while, for similar reasons, a labourer from another country will justly reprobate it. My *Bengal* and *Madras* servants, who have been accustomed to live upon rice, look upon the *Ragy* as execrable food, and, in fact, would experience great inconvenience were they compelled to live on it.

Ragy harvest.

The *Ragy* is reaped by the sickle, and the straw is cut within four inches of the ground. For three days the handfuls are left on the field; and then, without being bound up in sheaves, are stacked, and the whole is well thatched. At any convenient time within three months, it is opened, dried two days in the sun, and then trodden out by oxen. The seed, having been thoroughly dried in the sun, is preserved in straw *Mudies*. The remainder is put into pits, or *Hagays;* where, if care has been taken to dig the pit in a dry soil, it will keep in perfect preservation for ten years.

Manner of preparing *Ragy* for use.

Ragy is always ground into flour, as wanted, by means of a hand-mill, called *Visacallu*. In this operation it loses nothing by measure; so that a *Candaca* of *Ragy* is reckoned to contain as much nourishment as two *Candacas* of *Paddy*. The flour is dressed in various ways. The most common are, a kind of pudding called *Sangutty*, and two kinds of cakes, called *Ruty* and *Doshy*, both of which are fried in oil.

Straw of *Ragy*.

For all kinds of cattle, the *Ragy* straw is here reckoned superior

to that of rice. My *Madras* bullock-drivers dispute the point; but I am inclined to think that they are wrong; for the people here have much experience of both kinds of straw, while the *Madras* people are only accustomed to that of rice, or at least have never seen the *Ragy* straw used except in our camps, where many causes contributed to render the mortality among the cattle very great.

Avaray, or *Dolichos Lablab.*

The *Avaray* is probably what Linnæus, from an indecent *Chinese* word, calls by the barbarous appellation of *Dolichos Lablab.* This, however, is doubtful. Dr. Roxburgh calls it *Dolichos spicatus.* By the *Decany* Mussulmans it is called *Bullar.* It is the *Putcary* of the *Bengalese,* and *Anamalu* of the *Telingas.* When ripe, the legumes are nearly dry. The plant, having been cut, and for one day exposed to the sun, is beaten with a stick to separate the seed. That which is designed for seed is preserved in *Mudies;* while that for consumption is kept in pots, and is used in *Curries.* The straw is eaten by all kinds of cattle except horses.

Tovary, or *Cytisus Cajan.*

The *Tovary* is the *Cytisus Cajan* of Linnæus, the *Orhur* of the *Bengalese,* the *Dhál* of *Hindustan,* and the *Tower* of the *Decany* Mussulmans. Many of the *Karnátas* also call it *Togari.* It is cut when almost dry, then put up in heaps; and on the day after, it is opened to dry in the sun. The grain is beaten out with a stick; and that intended for sowing must be preserved in a straw *Mudy.* It is used in *Curry.* After the seed has been thrashed, cattle eat the husks of the legume. The straw is used for fewel.

Ragy soil.

The best soil for the cultivation of these three articles is the black soil, or *Eray bumi;* which yields a crop of *Ragy* every year, and even without manure will give a considerable return; but, when it can be procured, dung is always given. After a crop of *Jola, Ragy* does not thrive; but *Jola* succeeds after a crop of *Ragy.* The next best soil for *Ragy,* and the one most commonly used, is the *Cabbay,* or red soil. In this also it is frequently cultivated without dung; but it requires to be manured at least once in two or three years. In *Marulu* and *Daray* soils, it every year requires

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dung. If these soils have been cultivated with *horse-gram*, the *Ragy* will not grow in them without a large quantity of manure. Two or three years rest are said by some to improve the ground for one crop of *Ragy;* after which it returns to its usual state. But the advantages of this fallow are too inconsiderable to induce the farmers to practise it commonly, and most of them are altogether insensible of the benefit to be derived from this part of agriculture.

Jola, or the *Holcus sorghum.*

Jola is the next most considerable dry crop. It is the *Holcus Sorghum* of Linnæus, the *Jewarry* of the Mussulmans, the *Sholum* of the *Tamuls*, and the *Jonalu* of the *Telingas.* It is often sown for fodder; for when the crop is not uncommonly good, the grain is no object. It is cut, and given to the cattle at a time when *Ragy* straw is not to be procured. Previously to being given to cattle, however, it must be dried, as the green straw is found to be very pernicious. There are two kinds of *Jola;* the white, and the red. When they are intended to be cut for the grain, these are sown separately; as the red kind ripens in three months, while four are required to ripen the white *Jola.* In those parts of the *Ashta gram Talucs* which are remote from the city, the grain is generally preserved; but near *Seringapatam*, where the demand for fodder is greater, and where the *Jola* is commonly cultivated with a view to furnishing that article, the two kinds are often sown promiscuously. A red *Ragy* soil is preferred for it, and crops of *Ragy* and *Jola* are generally taken alternately, the crop of *Ragy* having an extraordinary allowance of dung. The *Jola* requires less rain than the *Ragy*, and admits of a second crop of *Huruli* being taken after it; and thus, in the course of two years, there are on the same ground three crops. In *Phalguna* and *Chaitra*, from the 14th of February to the 22d of April, they plough from five to seven times. If a crop of *Ragy* has preceded, there is no occasion for manure to the *Jola;* but, when two crops of this succeed each other, the last must get some dung, which is put on before the last ploughing. After a heavy rain in *Vaisakha*, from the 23d April to the 23d May, the seed is sown

broad-cast, and covered with the plough. When the young plants have appeared above ground, the field must be cleared with the *Cuntay*, or bullock hoe; and this operation must be repeated on the thirtieth and forty-fifth days. If it be intended merely for fodder, these hoeings are unnecessary, and the seed is sown very thin, as mentioned in the list; but then, should it by chance succeed, and be allowed to ripen, the produce will be very great. Where it is intended from the first to be allowed to ripen, the quantity of seed sown is one half more, or 1,$\frac{338}{1000}$ gallon for an acre; in which case 80 fold being the average return, the produce of an acre is the same as mentioned in the list, or 15$\frac{1}{2}$ bushels. If it be intended for fodder, the *Jola* is sown about the middle of *Chaitra*, or the 9th of April, and cut down in *Ashádha*, or from the 23d of June till the 23d of July. The straw is not so good as that of *Ragy*, but is here reckoned better than that of *Paddy*.

Chica Cambu, or Holcus spicatus.

The *Chica Cambu* is the *Holcus spicatus* of Linnæus, the *Bajera* of the Mussulmans, the *Ghentalu* of the *Telingas*, and the *Sujagury* of the *Marattahs*. In the *Tamul* language also it is called *Cambu*. There is another variety of the plant, called *Doda*, or Great *Cambu*; but none of this is cultivated near *Seringapatam*. During the spring, plough six times; about the 13th of *Jyaishtha*, or 5th of June, put on the dung, and plough again; when the heavy rains commence, sow broad-cast, and plough in the seed. In drills with the *Cambu* some people put *Avaray*; others do not. On the tenth day hoe with the *Cuntay*, once lengthways, and once across the field. It must be carefully protected from the birds, when approaching toward ripeness, which happens in three months and a half. The ears are first removed, and then the straw is cut down close to the ground. It makes excellent thatch, and is also eaten by cattle, but is not much esteemed as fodder. The ears are kept in a heap for three days, then trodden out by oxen, and cleaned by a fan, or *Moram*. The seed intended for sowing, after being well dried in the sun, is preserved in *Mudies*. That intended for consumption, is kept in

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Canajas, or store-houses, but cannot be preserved long. It is made into flour for cakes, and for *Sangutty*, or pudding. If sown on the two good soils, it requires no dung; but on the two bad soils manure is absolutely necessary. Repeated crops of this grain do not exhaust the ground, and *Ragy* thrives after it.

Shamay, or *Panicum miliare*.

Shamay is the *Panicum miliare* of Lamarck, the *Sama* and *Sawmun* of the Mussulmans, the *Chama* of the *Telinga*, and the *Shamay* of the *Tamul* language. It is never sown on the *Eray* or black clay, and rarely on the *Cabbay*, or red soil; the two worst qualities of land being considered as sufficiently good for such a crop. In the spring the field is ploughed five times. At the commencement of the heavy rains it is sown broad-cast, and the seed is covered by a ploughing. Even in the worst soil, there is no absolute necessity for dung; but when any can be spared, the crop will doubtless be benefited by manure. It ripens without further care in three months, is cut close to the ground, and gathered into stacks. Five or six days afterwards it is spread on a thrashing-floor, and the grain is trampled out by oxen. That intended for sowing is dried in the sun, and tied up in straw *Mudies*. The remainder is preserved in *Canajas*. It is sometimes boiled whole, like rice; at others, ground into flour for cakes. All kinds of cattle eat the straw, which is also esteemed the best for stuffing pack-saddles.

Harica, or *Paspalum frumentacum*.

The *Harica* is the *Paspalum frumentacum* of Dr. Roxburgh, the *Varagu* of the *Tamul*, the *Harica* of the *Telinga*, and the *Cadoro* of the *Decany* Mussulman language. As it is found to injure the succeeding crop of *Ragy*, it is never cultivated on the best soil, and rarely on that of the second quality. It is commonly followed by a crop of *horse gram*, and is seldom allowed any manure. In the spring plough five times. The dung, if any be given, must be put on before the last ploughing. When the heavy rains commence, sow broad-cast, and plough in the seed: next day form drills of *Tovary* in the same manner as with *Ragy*. When the sprouts are a span high, hoe with the *Cuntay*, once longitudinally,

and once across the field. Next week weed with the *Ujary*. It ripens in six months; and, having been cut down near the root, is stacked for six days. It is then trodden out by cattle. The seed reserved for sowing must be well dried in the sun. The remainder is preserved in the *Canaja*, but does not keep long. It is both boiled like rice, and made into flour for dressing as *Sangutty*, or pudding. The straw is eaten by every kind of cattle; but, of all the fodders used here, this is reckoned the worst.

Navonay, or *Panicum Italicum*.

Navonay is the *Panicum Italicum* of Linnæus, the *Bagera* of the *Bengalese*, *Cangony* of the *Decany* Mussulmans, *Carolu* of the *Telingas*, and *Tenay* of the *Tamul* language. There are two varieties of it cultivated; the one called *Ghidu*, or short; and the other *Jotu*, or long, and *Doda*, or great. Unless a quantity of dung can be spared, it is never sown on the two worst soils. On the two best soils it requires no manure, and does not injure the succeeding crop of *Ragy*. In the spring, plough six times. When the heavy rains commence, sow, and plough in the seed. It requires neither weeding nor hoeing, and ripens in three months. Cut it close to the ground, and stack it for eight days; then spread it to the sun for a day, and on the next tread out the grain with oxen. The seed for sowing must be well dried in the sun, and preserved in a *Mudy*. The remainder is kept in the *Canaja*. It is made into flour for *Sangutty*, or pudding, and is also frequently boiled whole, like rice; for which, according to my taste, it is the best succedaneum that the country affords. The straw is used for fodder, but is not good. The *Jotu Navonay* is sometimes put in drills with *Ragy*, in place of the *Avaray* or *Tovary*.

Huruli, or *Dolichos biflorus*.

Huruli is much cultivated. It is the *Dolichos biflorus* of Linnæus, the *Horse gram* of the *Madras* English, the *Cultie* of the *Decany* Mussulmans, and the *Colu* of the *Tamul* language. There are two varieties; the red, and the black; but here the two are always sown intermixed. In the last half of *Srávana*, from the 5th to the 20th August, plough three times. Sow broad-cast, with the first

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rain of *Bhádrapada*, which commences on the 21st of August. It requires no manure, and the seed is covered by a fourth ploughing. In three months it ripens without farther trouble, and is then pulled up by the roots, and stacked for eight days: after which it is spread in the sun to dry, and next day is trodden out by oxen. The seed for sowing must be well dried in the sun, and preserved in *Mudies;* the remainder is kept in pots, or in the *Canaja*. It is used for human food, either dressed as *Curry*, or parched; but the chief consumption of it is for cattle, both horses and bullocks. The straw is an excellent fodder, and is preferred even to that of *Ragy*. It is generally sown on the two worst soils, in fields that are never used for any thing else; but it also follows as a second crop after *Jola;* or, when from want of rain the crop of *Ragy* has failed, the field is ploughed up, and sown with *Horse-gram*. In this case, the next crop of *Ragy* will be very poor, unless it be allowed a great quantity of manure. In places where the red and black *Horse-grams* are kept separate, the black kind is sown from twelve to twenty days later than the other.

Carlay, or *Cicer Arietinum*.

Carlay is the *Cicer Arietinum* of Linnæus, the *Cadaly* of the *Tamuls*, the *Shenigalu* of the *Telinga* language, the *Herbary* of the *Deccany* Mussulmans, the *Putny Chola* of the *Bengalese*, and the *Putny Bhut* of *Hindustan*. On the banks of the *Ganges*, this grain is the common food given to horses, and is very well fitted to make them fat and sleek, but it does not seem to invigorate. In the peninsula it is too dear to be given as food for horses, and indeed, even for men, is considered as a delicacy. There is only one kind of it that is commonly sown as a second crop, after *Jola;* but it requires the richest black soil. When sown alternately with *Ragy*, it seems neither to injure nor improve the ground. It has no manure. From the 15th of *Srávana* till the 10th of *Bhádrapada*, that is, from the 5th till the 29th of August, plough five times. The seed is then placed in rows, every way distant from each other a span. Each row is then covered by a furrow drawn with the plough. In

three months it ripens without farther trouble; it is then pulled up by the roots, and stacked for a week. It is afterwards opened to the sun for five or six days, and then trodden out by bullocks. The grain intended for seed must be dried in the sun, and preserved in a *Mudy*. The common way of preparing *Carlay* for food is by parching it. The straw is used for camels only, and is their favourite food.

Harulu, or Ricinus Palma Christi.

Harulu is the *Ricinus Palma Christi* of Linnæus. In the *Ashta gram* two varieties of it are common; the *Chica*, or little *Harulu*, cultivated in gardens; and the *Doda*, or great *Harulu*, that is cultivated in the fields, and the plant of which I am now to give an account. In the spring, plough five times before the 15th of *Vaisákha*, or the 8th of May. With the first good rain that happens afterwards, draw furrows all over the field at a cubit's distance; and, having put the seeds into these at a similar distance, cover them by drawing furrows close to the former. When the plants are eight inches high, hoe the intervals by drawing the *Cuntay* first longitudinally, and then transversely. When the plants are a cubit and a half high, give the intervals a double ploughing. The plant requires no manure, and in eight months begins to produce ripe fruit. A bunch is known to be ripe by one or two of the capsules bursting; and then all those which are ripe are collected by breaking them off with the hand. They are afterwards put into a heap, or large basket; and the bunches, as they ripen, are collected once a week, till the commencement of the next rainy season, when the plant dies. Once in three weeks or a month, when the heap collected is sufficiently large, the capsules are for three or four days spread out to the sun, and then beaten with a stick to make them burst. The seed is then picked out from the husks, and either made by the family into oil for domestic use, or sold to the oil-makers.

Castor-oil.

The following is the process for making castor-oil, which is used by the farmers: the seed is parched in pots containing about a *Seer*,

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which is somewhat more than a quart. It is then beaten in a mortar, by which process balls of it are formed. Of these from four to sixteen *Seers* are put into an earthen pot, with an equal quantity of boiling water, and boiled for five hours; during which, care must be taken, by frequent stirring, to prevent the decoction from burning. The oil now floats on the surface, and is decanted off into another pot, in which it is boiled by itself for a quarter of an hour. It is then fit for use, and by the last boiling is prevented from becoming rancid. After the oil has been poured from the seed, the pot is filled up with water, which is again boiled, and next day the decoction is given to the *Buffaloes*, by which their milk is said to be remarkably increased. The boiled seed is mixed with cow-dung, and formed into cakes for fewel. The dry stems of the plant are also used for the fire. The oil is that which we call *Castor-oil*, and at *Seringapatam* is commonly used for the lamp. It is taken internally as a purgative; and the *Súdras*, and lower casts, frequently anoint their heads with it, when they labour under any complaint which they attribute to heat in the system. It is cultivated on the two best qualities of land, and on the better kinds of *Marulu*. When the same piece of ground is reserved always for the cultivation of this plant, the succeeding crops are better than the first; when cultivated alternately with *Ragy*, it seems neither to improve nor injure the soil for that grain.

Huts' Ellu, or Ram Tila.

Huts' Ellu, or the *foolish-oil-plant*, is a species hitherto undescribed by botanists. It is the *Ram Tila* of the Mussulmans. Near *Seringapatam* it is most commonly sown after *Jola*, as a second crop. When that has been reaped, plough four times in the course of eight days. Toward the end of *Srávana*, or about the middle of August, after a good rain, sow broad-cast, and plough in the seed. It requires neither manure nor weeding, and ripens in three months. It is cut near the root, and stacked for eight days. Then, having been for two or three days exposed to the sun, the seed is beaten out with a stick, and separated from fragments of the plant by a

fan. The seed is kept in pots. Part of it is parched, and made into sweet-meats with *Jagory;* but the greater part is sold to the oil-maker for expression. This oil is used in cookery, but is reckoned inferior to that of *Sesamum.* The stems are a favourite food of the camel; but are disliked by the bullock, though want often forces this animal to eat them. When not used as a second crop after *Jola,* it is always sown on the two poorer soils.

The *Wull' Ellu,* or *Sesamum,* is sometimes sown on dry-field, but grows very indifferently.

Gardens.

In the *Ashta grams* there are four kinds of *Tota,* or gardens, cultivated. I. *Tarkari Tota,* or kitchen-gardens: II. *Tayngana Tota,* orchards, literally *Coco-nut* gardens; but many other kinds of fruit-trees are planted in them. III. *Yellay Tota,* or *Betel-leaf* gardens. IV. *Huvina Tota,* or flower-gardens.

Near *Seringapatam* the first two kinds of gardens are always cultivated by the farmers; the *Yellay Tota* by a distinct class of men; and the flower-gardens by *Satany,* or those who make garlands.

Tarkari, or kitchen stuffs.

The plants cultivated as *Tarkari* are:

	Canarese Names.	Botanical Names.	*Synonyma.*
	Badana - - - -	*Solanum Melongena*	
	Hiray - - - -	*Cucumis* - - - - -	*Junga. Bengalese.*
	Somaty - - - -	*Cucumis sativus.*	
	Cumbala - - - -	*Cucurbita Pepo.*	
	Budu Cumbala - -		
	Swary - - - -	*Cucurbita Lagenaria*	*Mitalau. Bengalese.*
Fruits.	*Padawala* - - -	*Trichosanthes lobata.*	
	Hogala - - - -	*Momordica.*	
	Chica Hagala		
	Benday - - - -	*Hibiscus esculentus.*	
	Pundichira Cumbala	*Hibiscus cannabinus* -	A red variety from *Pondichery,* introduced by *Tippoo.*
	Gori - - - - -	*Trigonella tetrapetala,* Rox. MSS.	

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	Canarese Names.	Botanical Names.	*Synonyma.*
Fruits.	*Chaprada avaray* -	*Dolichos Lablab,* a variety.	
	Nella Cotalay - -	*Arachis hypogœa* - -	*Velaty Mung, i. e.* European bean. *Mussulmans.*
	Meneshena - - -	*Capsicum.*	
	Musucu Jola - -	*Zea Mays.*	
Roots and Leaves.	*Dovana* - - - -	*Artemisia abrotanum?*	
	Kiray - - - -	*Amaranthus Mangostanus.*	
	Duntu - - - -	*Amaranthus oleraceus.*	
	Mentea - - - -	*Trigonella Fœnum Græcum* Lin.	
	Columari - - -	*Coriandrum Fœtidum,* Buch. MSS.	*Danya. Bengalese.*
	Sopsica - - - -	*Anethum sowa,* - Rox. MSS.	*Sulpo. Bengalese, Sowa. Mussulmans.*
	Holichicay - - -	*Rumex truncata,* - - Buch. MSS.	*Chucay. Mussulmans.*
	Chicotra - - - -	*Rumex* - - - -	*Chuca Palam. Bengalese.*
	Doda Gorai - - -	*Portulaca oleracea.*	
	Mulingay - - -	*Raphanus sativus* - -	Radish.
	Truly - - - -	*Allium* - - - - -	Onions of the Engl:
	Beluly - - - -	*Allium* - - - - -	Garlic.
	Arsina - - - -	*Curcuma longa* - - -	Turmeric.
	Sunty - - - -	*Amomum Zinziber* - -	Ginger.
	Ghenasu - - - -	*Convolvulus Batatas* - - -	Sweet Potatoes.
	Kissu dentu - -	*Arum pellatum* - - B. Lamarck.	*Shamay. Mussulman. Sada Cutchu. Bengalese.*
	Bassalay - - - *Suranu.*	*Basella rubra.*	

All the kitchen gardens in this neighbourhood are irrigated from the canals, by small channels that conduct the water into wells, whence it is distributed by pots. The gardens are laboured by

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digging with the *Col Kudáli*, and are then smoothed with the *Yella Kudáli*. The weeds and roots must be carefully removed, and the gardens must be manured from the dunghill. Many farmers have small *Tarkari* gardens for their family use, and for supplying the city with vegetables; but there are no considerable gardens of this kind. The same piece of ground is generally preserved for the garden, and is not changed into rice fields. The soil must be of the two first qualities; and the rent is paid in money. The expense of cultivating a *Tarkari* garden is much greater than that which is incurred in the same extent of ground prepared for rice.

Orchards.

In the *Tayngana Tota*, or orchards, are cultivated the following articles:

Canarese Names.	Botanical Names.	*Synonyma.*
Tayngana - - -	*Cocos Nucifera* - -	*Coco-nut.*
Adicai - - - -	*Areca Catechu* - -	*Betel-nut, Supari* of the *Mussulmans.*
Balay - - - -	*Musa* - - - - -	Plantain tree.
Nimbay - - -	*Citrus* - - - - -	Lime.
Kictalay - - -	*Citrus* - - - - -	Sweet orange.
Hayralay - - -	*Citrus* - - - -	Bitter orange.
Jambu - - - -	*Psidium* - - - -	*Guava.*
Dalimbay - - -	*Punica Granatum* -	Pomegranate.
Hulusu - - - -	*Artocarpus integrifolia*	*Jack.*
Mau - - - -	*Mangifera* - - -	Mango.
Nerulu - - - -	*Calyptranthes Cariophyllifolia* W.	
Nelli - - - -	*Phyllanthus Emblica*	
Hunishay - - -	*Tamarindus* - - -	Tamarind.
Amuttay.		
Humtica - -	*Spondias dulcis.*	

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In the *Ashta gram Talucs*, no fruit gardens of any consequence are remaining; these having all perished during the late wars. The soil favourable for them is low ground in narrow valleys, where water can easily be procured by digging a few feet. If this ground cannot be had, rice lands may be converted into orchards. In the neighbourhood of *Seringapatam*, however, there is much ground fit for gardens, where, by digging from one to four cubits, water can always be obtained. The soil must be *Eray*, or rich black clay. In making these gardens, it has been customary for the government to advance money to the farmer. The young trees are planted in rows; and between these are set plantain trees, with the produce of which, at the end of the year, the farmer pays back the advance. The *Coco* and *Betel-nut* palms are called *Vara*, and pay to government one half of the produce. The plantain pays three *Sultana Fanams* (2*s.* 0,177*d.*) for the hundred trees. The fruits of the mango, orange, &c. belong entirely to the farmer; but it is said, that the *Amildars* expect to be supplied for their own use, although they do not bring any thing to accompt for these trees.

Betel-leaf gardens.

Near *Seringapatam* the *Betel-leaf* gardens *(Piper betel)* are not numerous. They are invariably formed on rice-ground; and a *Cabbay* soil, or a mixture of *Cabbay* with *Marulu*, best answers the purpose. The *Betel-leaf-vine* is sometimes planted against the *Betel-nut-palm*, in which case it pays no rent; but when it is planted by itself, a rent is fixed by an agreement between the officers of revenue and the cultivator. In this case, the garden is surrounded by a hedge of the *Euphorbium Tirucalli;* and a well is dug, from whence the garden is watered by pots. In *Chaitra*, from the 26th of March till the 23d of April, the garden throughout is dug one cubit deep, and the grass and roots are carefully removed. Having allowed it to rest for a month, and having obtained a shower of rain, hoe it with the *Yella Kudali*, and make it smooth. Holes, one cubit and a half in diameter, and three inches deep, are then formed throughout the field, at the distance of five cubits. In each of these is laid down a bundle of five cuttings

of the *Betel-leaf-vine*, a cubit and a half in length, and tied slightly together at the middle. A thin covering of earth is then put on the middle of each bundle, both ends of the cuttings being left bare. After this, for one month, the holes must be shaded from the sun, by covering them with leaves and branches, and each hole must daily receive two pots of water. Near each row of holes, a drill must be made with the *Yella Kudali;* and in this must be planted, at every half cubit's distance, the seeds of the *Agashay (Æschynomene grandiflora)*, *Harwana (Erythrina Indica*, Lamarck*)*, *Bura*, and *Nugay (Guilandina Moringa)*, which must be slightly covered. This whole process must be finished in *Vaisákha*, which this year ends with the 23d of May. Each of the holes must every day receive half a pot of water, except when it rains; and on the 15th day must have as much cow-dung and ashes mixed as the cultivator can lift between his two hands joined. After this manuring, when there is no rain, the garden must once every other day be watered. The manuring must be repeated once a month till the shoots are six months old; at the same time the garden must be weeded, and the earth in the holes loosened with a sharp stick. In each hole, at the end of six months from planting, must be put two sticks, three cubits high, on which the young vines may climb. At the end of the year these sticks are pulled out; the vines are then put upon the young trees; and every month, as they grow, must be tied up to the stems. Once a year, two cubits of the part of the vine that is nearest the ground must be laid down, and buried in the earth. The plant begins to produce ripe leaves in the twenty-fifth month, and continues productive at all seasons, and for many years. One of the men present, who is about fifty years of age, possessed a garden that had been planted by his father when a young man.

Flower gardens.

The *Huvina*, or flower gardens, are cultivated near towns and populous places which afford a market for their produce. In other situations, small spots are planted with flowers for the use of the

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temples. It is only where the flowers are sold, that any rent is exacted for the soil. High grounds, that can be watered with pots from a well, are chosen for flower gardens, and the red soil is reckoned the most favourable.

Dry channel of the river cultivated.

In the dry sandy channel of the river, at this season, the natives plant four kinds of cucurbitaceous fruits; *viz.* the *Carbuja,* or water melon; the *Tarbuja;* the *Calungudy;* and the *Minicai.* In *Kártika* (19th October till 16th November) they dig down trenches till the sand appears moist. Then they plant the seed, and put over it a little dung and *Marulu* soil. In fifteen days it must have more dung, and a slight covering of sand; and at the end of the month another manuring. In a fortnight more the flowers appear, and, next fortnight, young fruit is cut for sale. In the whole of the third month, the plants produce mature fruit. If any rain comes, the whole labour is lost.

Cattle.

The cattle chiefly bred in the vicinity of *Seringapatam* are cows, buffaloes, sheep, the long-legged goat, and asses. Horses, swine, and the common goat, are in too small number to be of any importance; and camels are all brought from a distance.

Oxen.

In this part of the country, the oxen that are bred are by no means numerous enough for the use of the cultivators; and none are reared that are fit for carriage. The supply comes chiefly from *Alumbady, Tripaturu, Cavadu hully, Cancana hully, Ramaghery,* and *Mageri.* The farmers in general keep no more stock than the oxen required to cultivate their lands, with a few cows, or more commonly buffaloes, to give milk for their families. I shall, therefore, defer till another opportunity giving any further account of this kind of cattle.

Buffalo milk.

The persons who sell milk are commonly called *Gaulies,* and *Cabadies;* but, in fact, they are of four distinct tribes. I. *Gaulies,* a tribe that wear the *Linga.* II. *Gualaru* of the *Súdra* cast. III. *Eiru,* who are Mussulmans. IV. *Hindustany Eiru,* who are *Rajputs.* Their mode of managing cattle is the same. Near *Seringapatam* they keep

only buffaloes; as these animals continue in milk longer, and give it in greater quantities, than the cows do; and the grand object of the *Gauly* is to supply cities and camps with the produce of his dairy. Three men, one woman, and two oxen, are required to manage twelve female buffaloes. One man, with the assistance of the two oxen, brings the grass for their nightly consumption; one man collects the various articles of dry food given to them in the house; and the third conducts them to pasture and drink, and milks them. The woman prepares the milk, and carries it to market. Near a camp, in order to prevent the woman from mixing too much with the soldiery, the last two persons exchange offices.

Early in the morning the buffalo receives the inner husks of rice, or the farinaceous cakes remaining, after the expression of oil, from the seeds of the *Sesamum* or *Huts' Ellu:* these are mixed with water, and given as the morning drink. The keepers have also a pot in which they collect the water wherein their rice or other grain has been boiled, and into which is thrown the remains of all their farinaceous food. They add to this by collecting, through the villages, similar materials from all those who can spare them, making in return occasional presents of butter-milk. The acidulous contents of this pot are also given to the buffaloes as part of their morning drink. They are then milked, and at about seven o'clock in the morning are sent out to pasture in the waste lands. During the Sultan's government there was great difficulty in procuring pasture, as the whole was reserved for his horses and deer. At present, it is in plenty, and the buffalo-keepers pay nothing for it. The buffalo requires drink again at noon, and in the evening. About noon, in hot weather, she throws herself into the water or mud of a tank, if there be one accessible at a convenient distance; and, leaving nothing above water but her nose, continues there for five or six hours, or until the heat abates: she is then carefully washed by the keeper, and driven home. In cold weather, before she retires in the evening, she must be forced to the tank or well, in

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order to be washed. When tied up, she receives another feed of rice husks, oil-cake, or, if they can be procured, of *Jola*, *Cambu*, *Udu*, *Hessaru*, or cotton seed. The *Cambu* and *Hessaru* are reckoned the most productive of milk, and the cotton seed of butter. At each meal, a full allowance of these dry articles of provision is two *Seers*, or rather more than half a gallon. The buffalo is then milked a second time, and receives her share of the grass that has been collected through the day. According to the heat of the weather, she drinks daily from 60 to 90 *Seers*, or from about 16 to 24 gallons.

The female buffalo is fit for breeding at three years of age; and, after going with young nine months, brings forth her calf in the cold season. The best males are kept for breeding. The others are either sacrificed when young, or brought up for labour; and at four years of age, in the rainy season, these last are emasculated. Two ploughs wrought by bullocks will perform as much labour as three wrought by buffaloes, that work from six in the morning till noon, and from three in the afternoon till sun-set.

The buffalo of *India* is the same with that of Europe, or the *Bos Bubalis* of Linnæus; of which I do not observe any good description, or figure, in our books of natural history. It is totally distinct from the buffalo of the *Cape;* and the *Arnee* is merely the animal in its wild state, an exaggerated account of which has been given to Mr. Ker, and published in his translation of the *Systema Naturæ.* The figure and description of the naked buffalo, in Pennant's History of Quadrupeds, bears no resemblance whatever to any variety of this animal that I have met with. Three varieties of buffalo are reared near *Seringapatam:* I. the *Hullu;* II. the *Gujari*, or *Guzurat;* III. the *Chocatu*, which comes from the country bordering on the river *Krishna.*

The *Hullu* is by far the most common, and is the native breed of the country. The female has a calf every year, and gives milk for seven months. Besides what the calf draws from her, she gives twice a-day about a *Seer*, or quart, of milk. (The *Seer* of milk, it must be

observed, is less than that of grain; for the last is always heaped. The *Seer* of milk is very nearly equal to the English ale quart). She generally bears from ten to twelve calves, and is very unruly when the keeper attempts to milk her without the calf being present. A female of this breed, when three or four years old, costs from three to six *Canter'raia Pagodas*, or from 1*l.* 0*s.* 2¼*d.* to 2*l.* 0*s.* 5½*d.* A male fit for labour sells for from one to three *Pagodas*, or from 0*l.* 6s. 8½*d.* to 1*l.* 0*s.* 2¼*d.* They will convey a greater weight, either in a cart or on their back, than a common ox; but walk very slowly, do not endure heat, and cannot easily travel more than seven miles a-day.

The two stranger breeds are greatly superior in size to the *Hullu;* but in this country they very soon degenerate. The females breed once in two or three years only, and produce in all about six calves. For two years after each parturition, they continue to give a large quantity of milk; but in the third year their milk begins to diminish; and it entirely ceases about two months before the time of calving. In this country, besides what the calf is allowed, they give daily from six to eight quarts of milk, and require no more food than the common breed, neither do they refuse their milk, should the calf be removed or die: a young female of these breeds sells for ten to twelve *Pagodas* (3*l.* 7*s.* 2*d.* to 4*l.* 0*s.* 7*d*). The males are entirely reserved for breeding, or for carrying cloth; one of them will carry as much as six oxen, and will walk faster. They sell for about fifteen *Pagodas*, or 5*l.* 0*s.* 8¼*d.*

Sheep.

The shepherds are of a tribe called *Hal*, or *Wullay Curubaru;* who in this neighbourhood have generally fixed abodes, and rear large flocks of sheep, and long-legged goats.

I shall take another opportunity to describe the *Curi*, or sheep of *Mysore*. There are three varieties as to colour, red, black, and white; but these do not constitute different breeds. The red are scarce, and do not thrive, being chiefly brought from the *Coimbetore* country; and it has been found by experience, that no sheep thrive here, except those yeaned in the immediate vicinity.

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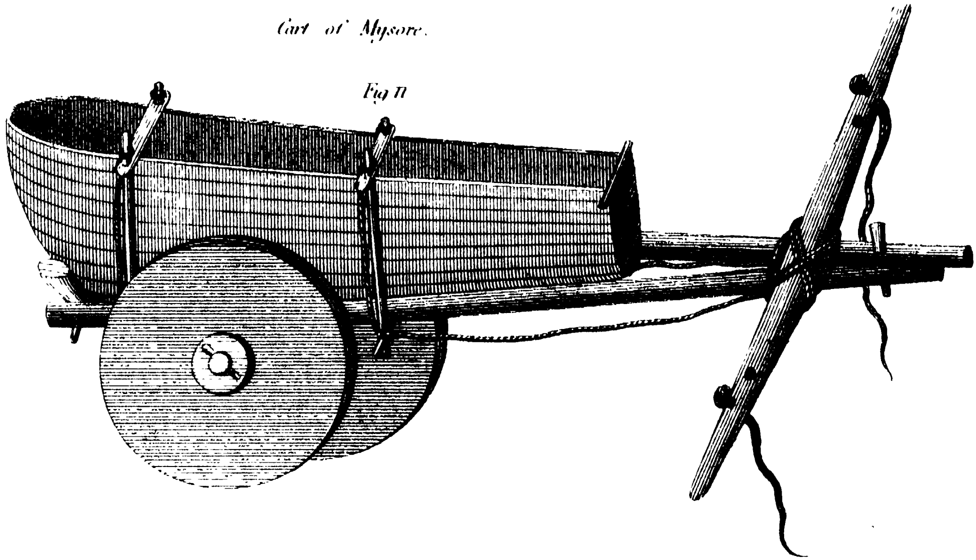
One man and a dog will take care of a flock of ten rams and a hundred ewes. The males that are not wanted for breeding are partly offered up, when lambs, as sacrifices by the shepherds themselves, and of course are eaten by them; or, while in their third year, they are emasculated, and a year afterwards sold to the butcher. The ewes breed at two years of age, without observing any particular season; and, after having given about four lambs, are sold to the butcher. For three months the lamb is suffered to draw the whole milk. Once a day afterwards, for from two to four weeks, a moderate portion is taken by the shepherd. The milk is mixed with that of cows and buffaloes; and thirty ewes do not give daily to the shepherd more than a quart. The sheep are shorn twice a year, and fifty fleeces produce about a *Maund* (or 24lb. 6 ounces), or nearly half a pound each. The wool here is all coarse, and is usually manufactured into a kind of blanket. A good wether sells for 1¼ *Rupee*, (2*s.* 8½*d.*) an old ewe for one *Rupee* (2*s.* 2*d.*), the fleeces of seven sheep sell for one *Fanam* (8*d*). The sheep are fed entirely on the grass that is found in waste lands; for which nothing is paid to government, only the shepherd is occasionally required to furnish a sacrifice for the village gods. In general, they are confined at night in a pen contiguous to the shepherd's hut; but in the ploughing season, they are lent out to the farmers, to be folded on their fields. For this, so long as he is employed, the shepherd receives his food. The sheep must have water twice a day, at noon, and two hours afterwards.

Maycay, or long-legged goat.

The long-legged-goat, called *Maycay* in the *Canarese* language, is a very different breed from the common goat; but the two kinds can propagate together. It seems to approach nearly to the *Syrian* goat, as may be seen by the accompanying figure of a male, Fig. 10. By the Mussulmans here, it is most absurdly classed with the sheep: while the short-legged goat has an appropriate name. In every flock of sheep there is commonly a proportion of *Maycays*, which may be from ten to twenty out of every hundred. This does

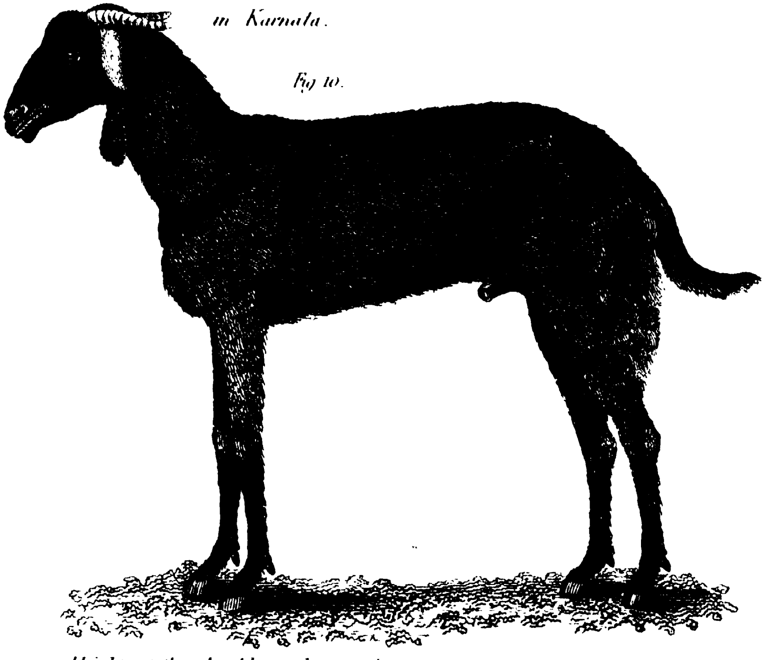
Cart of Mysore.

Fig 11



The long legged goat called Maykay in Karnata.

Fig 10.



Height at the shoulder 3 feet 5 inches

Length from the nose to the root of the tail 4 feet 11 inch

not interfere with the pasture of the sheep; as the *Maycay* lives entirely on the leaves of bushes and trees, while the sheep eat only the grass. They require the same quantity of water. One male is kept for twenty females. Of those not wanted for breeding, the shepherd sacrifices some for his own use while they are young; the remainder he castrates and sells to the butcher. The female breeds at two years of age, without observing any regular season; and once a-year produces sometimes one kid, sometimes twins. They breed about four times; after which they are generally killed by the shepherds for their own use. For three months the kid is allowed the whole milk; afterwards the mother is milked once a day for two months; and eight goats will give a quart of milk. A castrated *Maycay* sells for a *Rupee* and a half, or 3*s.* 3*d.* Some, that are very large, are ornamented with silver chains and bells, and serve for the children of the rich to ride on.

Swine.

Swine were once very common; but *Tippoo* succeeded in banishing them from the immediate neighbourhood of his capital. Very few have as yet been brought back; but they will soon be numerous, as their flesh is sought after by many of the farmers. The lard is extracted, and used for strengthening carriage bullocks. A *Seer* given to an ox, when he is two years old, and repeated yearly, is said to make him grow very fat and strong. It is given mixed with the porridge of *Ragy;* but is so nauseous to the animal, that it requires to be crammed down his throat. It appears to me very improbable that any good should arise from such a practice; but among the natives it is in frequent use.

Horses.

The native breed of horses here, as in most parts of India, is a small, ill-shaped, vicious poney; though considerable pains were taken by *Hyder* and *Tippoo* to introduce a better kind. They had however very little success, and their cavalry was extremely ill mounted. The studs of brood mares kept by the Sultan have been dispersed, and most of them have fallen into the hands of the *Amildars;* each of whom has one or two mares for his own riding, and

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breeds from them whenever he can procure a stallion. As many good horses have been introduced by the English officers, I have no doubt, that, in the hands of the *Amildars*, the breed will improve, and become very hardy and serviceable. The mothers have now the former quality in an eminent degree; and they only want an occasional supply of foreign horses to give them size and figure.

Manures.

A good deal of attention is here paid to manuring the soil. Every farmer has a dunghill; which is prepared by digging a pit of sufficient extent; in this is collected the whole of the dung and litter of the cattle from the houses where they are kept, together with all the ashes and soil of the family. The straw, and various leaves intended to be used as manure, are never mixed with the dung. The farmers who are within two miles of the city, send bullocks with sacks, and procure from the *Halal*, or sweepers, the ashes, ordure, and other soil of the town. This also is kept separate from the dunghill. The straws of various crops, as before-mentioned, are reserved for manure; and to these are added various leaves of wild plants; the *Cogay Sopu*, or *Galega purpurea;* the *Hoingay Sopu*, or *Robinia mitis;* the *Tumbay Sopu*, or *Phlomis esculenta* of Dr. Roxburgh's MSS.; the *Ugany Sopu*, a *Convolvulus:* the *Atty Sopu*, or *Ficus glomerata*, R.; the *Umutty Sopu*, or *Datura metel;* and the *Yeccada Sopu*, or *Asclepias gigantea*. These leaves, and the straw, are the manure given to rice ground in the *sprouted-seed* and *transplanted* cultivations. When the field has been reduced to mud, a sufficient quantity of the manure is trampled into the puddle, and, with the moisture and heat of this climate, soon rots. The dung in every part of *Mysore* is most commonly carried out on carts, (see Fig. 11,) which are applied to scarcely any other purpose. The city soil is reckoned best for sugar-cane, but is also given to various grains. The use of lime as a manure is totally unknown to the natives; who, indeed, consider all ground, naturally impregnated with that substance, as very unfit for most kinds of cultivation. This accords well enough with the theory of Lord Dundonald, who supposes that lime is useful by promoting the

putrefaction of inert vegetable matter. The heat of the climate is here sufficient for the purpose; and the lime, which in a cold climate may be necessary, would be here destructive, by exhausting the vegetable matter too quickly.

Size of farms, and stock.

Near *Seringapatam* the farms, in general, extend to two or three ploughs of land. One plough is a poor stock; the possessor of four or five is a great farmer; and six or seven are reckoned prodigious wealth: the total want of a land-measure, and the scattered disposition of the plots of which each farm consists, render it very difficult to ascertain the extent of a plough of land; especially as a difference arises from the proportion of *watered land* and *dry field* which it contains. We may readily affirm, however, that the extent of a plough of land is very inconsiderable; for the ploughings given to the same field are very numerous, although dispersed over a considerable portion of the year; and I was assured, that a plough wrought by bullocks did not labour more, daily, than one seventh of an acre.

This account of the tenures and extent of farms not being satisfactory, on my return to *Seringapatam* I assembled the *Amildar* of the *Pattana Ashta gram*, with the most intelligent of his *Sheristadars*, and several respectable *Gaudas*, to consult them on the subject. They say, that a farmer having five ploughs, if he lives near the town, must keep ten servants, owing to the scarcity of forage. At some distance, five men servants are sufficient. In harvest and seed time, he must hire additional labourers, who are chiefly women, and must have fourteen oxen.

Rent of watered land.

Instead of dividing the crops, as usual in most parts of the country, the farmer here cultivates his *watered land* as he pleases, and pays for each *Candaca* of ground ten *Candacas* of *Paddy*, which are equal in value to 1120 *Seers* of rice. The average price of this is about 20 *Seers* for a *Rupee*. For this ground, therefore, he pays to the government 66 *Rupees*, which is at the rate of 1*l.* 3*s.* an acre. He must also give an allowance to the gods, and to the

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Panchanga, *Talliari*, and other village officers, in lieu of the share which they were formerly wont to receive on a division of crops. The rent of *dry field* is paid in money, according to an old valuation formed on an estimate of its produce. With five ploughs, a man cultivates about 12½ acres of watered land, and 25 acres of dry field. The *Circar*, or government, is bound to keep the canals and tanks in repair.

Tenures.

The *Ryuts*, or farmers, have no property in the ground; but it is not usual to turn any man away, so long as he pays the customary rent. Even in the reign of *Tippoo*, such an act would have been looked upon as an astonishing grievance. The *Gaudas* are not here hereditary, but are appointed by the *Amildar*, with the consent of the farmers; for the *Amildar* never attempts to put in any person contrary to the wishes of the people. These *Gaudas* receive a fixed pay of 20 *Fanams*, or 13*s.* 5¼*d.* a month, and perform the sacrifices, which in other places are usually offered by the hereditary chiefs of villages.

Gaudas.

The account of these persons, concerning the quantity of ground that can be laboured by one plough, is probably under-rated. According to an account of the ground that is now actually cultivated by the plough in the *Pattana Ashta gram*, which was procured from *Purnea*, and given me by Colonel Close, the watered lands amount to 1369 *Candacas*, or 8487 acres, and the dry field to 964 *Candacas*, or 22,172 acres. This divided by 3078, which, according to public documents, is the number of ploughs in the same district, will give for a farm of five ploughs 13. $\frac{78}{100}$ acres of *watered land*, and 36 acres of *dry field.*

Servants wages.

The hire of farmers' labourers at *Seringapatam*, and generally within two miles from the city, when employed throughout the year, is 10 *Sultany Fanams*, or 6*s.* 8½*d.* a month. The servant lives in his own house; and it is customary for the master, on extraordinary occasions, such as marriages, to advance the servant money. This is not deducted from his wages by gradual instalments;

but is considered as a debt, that must be repaid before the servant can leave his place. In case of the servant's death, his sons are bound to pay the debt, or to continue to work with their father's master; and, if there be no sons, the master can give the daughters away in marriage, and receive the presents that are usually given on such occasions, unless these should exceed the amount of the debt. In harvest, the daily hire of a man is six *Seers* of *Paddy*. A woman transplanting rice gets daily $\frac{1}{4}$ of a *Sultany Fanam*, or about two-pence. The only servant that does work in the house of a farmer is a woman, who comes once a day to sweep the house, and for her trouble receives a piece of cloth once a year. The women of the family cook, fetch water, and perform all other family labour. The servants are both *Súdras* and *Whalliaru*; but seven tenths of the whole are of the former cast.

Six or seven miles from town, the monthly hire of a servant is 8 *Fanams*, or about 5*s.* 4*d.* Farther from the city, the hire is one *Fanam*, and 80 *Seers* (or a little more than eleven pecks) of grain; of which one half must be *Ragy*, and the remainder of such kind as it may be most agreeable to the farmer to spare.

Weekly markets.

At different convenient places in every *Taluc* there are weekly markets, which in good parts of the country may be about two or three miles from each other. To these the farmers carry their produce, and sell it, partly to consumers by retail, and partly by wholesale to traders. In the early part of the day they endeavour to sell their goods by retail, and do not deal with the traders unless they be distressed for money. It is not customary for traders to advance money on the crops, and to receive the produce when they ripen. At all these markets business is carried on by sale; no barter is customary, except among a few poor people, who exchange grain for the produce of the kitchen garden.

Imperfect state of agriculture.

On considering the state of agriculture near *Seringapatam*, many capital defects will be perceived. A meliorating succession of crops is

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utterly unknown; scarcely any attention is paid to the improvement of the breed of labouring cattle, and still less to providing them with sufficient nourishment. The religion of the natives, indeed, is a powerful obstacle in the way of agriculture. The higher ranks of society being excluded from animal food, no attention will, of course, be paid to fattening cattle; and without that, what would our agriculture in England be worth? We could have no green crops to restore our lands to fertility, and but a scanty manure to invigorate our crops of grain. I am afraid, however, that the reader, in perusing the foregoing accounts, will have formed an opinion of the native agriculture still more favourable than it deserves. I have been obliged to use the English words ploughings, weedings, and hoeings, to express operations somewhat similar, that are performed by the natives; and the frequent repetitions of these, mentioned in the accounts taken from the cultivators, might induce the reader to imagine that the ground was well wrought, and kept remarkably clean. Quite the reverse, however, is the truth. Owing to the extreme imperfection of their implements, and want of strength in their cattle, a field, after six or eight ploughings, has numerous small bushes remaining as upright in it as before the labour commenced; while the plough has not penetrated above three inches deep, and has turned over no part of the soil. The view of the plough and other implements in the annexed plates, will sufficiently account for this circumstance. The plough, it must be observed, has neither coulter nor mould-board, to divide, and to turn over the soil; and the handle gives the ploughman very little power to command its direction. The other instruments are equally imperfect, and are more rudely formed than it was possible for my draughtsman to represent.

Manufactures.

The manufactures of *Seringapatam* and its vicinity were never considerable. They were chiefly military stores and camp equipage; and of course, have been greatly reduced by the arsenal

having become a mere dependency on that of *Madras*. Weavers are now assembling in considerable numbers in *Shahar Ganjam*, and in a short time will probably become numerous. The trade of the place was almost entirely confined to the importation of provisions, clothing, and luxuries for the court and army; and the returns were almost wholly made in cash. CHAPTER II. May 20, &c.

In the following table, the coins current here are detailed. Coins.

Carrata Name.	*Mussulman* Name.	English vulgar Name.	By whom coined.	Grains weight.	Grains pure Gold or Silver.	Value compared with a Guinea.	Value compared with a Shilling.	Value according to exchange of silver and base gold compared to *Sultany* Pagodas	Value in Dudus. According to Government Regulation.	Value in Dudus. According to change given by *Shroffs*.	Value in Dudus. According to Market price.
						£. s. d. dec.	s. d. dec.	s. d. dec.			
	Ahumuddy - -	Gold *Mohur* - -	*Tippoo Sultan* - -	212	181,791	1 12 2,84	- - -	- - -	728	936	1040
	Siducy - - -	Half *Mohur* - -	*Tippoo Sultan* - -	106	90,8955	0 16 1,42	- - -	- - -	364	468	520
Sultany Varaha -	*Sultany Hun* - -	*Sultany Pagoda* -	*Tippoo Sultan* -								
Bahadury Varaha	*Bahadury Hun* -	*Bahadury Pagoda*	*Hyder Aly Khan*	53	45,4477	0 8 0,71	- - -	- - -	182	234	260
Ikery Varaha - -	*Ikery Hun* - -	*Swamy Pagoda* -	*Mysore Raja* -								
Company Varaha -	*Companyca Hun* -	Star *Pagoda* - -	The *Madras* Mint	52¼	41,47	0 7 4,24	- - -	- - -	168	216	240
Sultany Hana -	*Sultany Palam* -	*Sultany Fanam* -	*Tippoo Sultan* -	6	3,519	0 0 7,489	- - -	8,059	14	18	20
Canter'raia Hana	*Canter'raia Palam*	*Cantery Fanam* -	*Mysore Raja* -								
		Silver.									
Sultany Rupea -	*Sultany Rupea* -	*Sultany Rupee* -	*Tippoo Sultan* -	177	165,053	- - -	1 11,05	2 2,036	49	63	70
Mysoor Raja Rupea	*Rajaca Rupea* -	*Rajas Rupee* - -	*Mysore Raja* -								
Company Rupea -	*Companyca Rupea*	*Company Rupee* -	The *Madras* Mint	175	163,625	- - -	1 10,84	2 2	48	62	69
		Copper.									
Dudu - - - -	*Paissa* or *Jora* -	*Dub* - - - -	- - - - - - -	177	- - -	- - -	- - -	- - -	- -	- -	1
Dod'dudu - - -	*Du' Paissa* - -	Double *Dub* - -	- - - - - - -	354	- - -	- - -	- - -	- - -	- -	- -	2

N. B. The following Fractions of the *Rupee* were coined by *Tippoo Sultan*; $\frac{1}{4}$ or *Bacri*, $\frac{1}{8}$ or *Jasri*, $\frac{1}{16}$ or *Casmi*, and $\frac{1}{32}$ or *Kizri*.

Accounts are commonly kept in *Canter'raia Palams,* and in an imaginary money containing ten of these; by the Mussulmans called *Chucrums,* and by the English *Cantery Pagodas,* a corruption of *Canter'raia Pagoda.* It must be observed, that, in the table, the value of the silver coins is estimated from that of the gold, according to the rate of exchange. That of gold coins is fixed by comparing the pure gold that each contains, with that of a guinea: but the *Canter'raia Palam,* being much adulterated, passes for more than its real value. This would occasion much confusion. I shall therefore, in all calculations, consider it as worth one twelfth part of the *Sultany Pagoda.* The coins were assayed at the *Calcutta* mint by Mr. Davidson.

Regulations concerning money.

The value of the different coins was frequently changed by the late Sultan in a very arbitrary and oppressive manner. When he was about to pay his troops, the nominal value of each coin was raised very high, and kept at that standard for about ten days; during which time the soldiery were allowed to pay off their debts at the high valuation. After this, the standard was reduced to the proper value. Ever since the place has been in the hands of the English, the value has been fixed by the commanding officer. The value put upon the copper, by this regulation, is higher than the market price of that article; owing, probably, to a difficulty in getting copper money to pay the troops the fractional parts of their allowances. The *Batta,* or price exacted by the money-changers for converting coin of one kind into another, is moderate; but the dealers are accused of imposing on those who are unacquainted with business; and, as scarcely any of the coins are aliquot parts of another, they have great opportunities for this kind of fraud. I have, in the table, stated the quantity of copper given, by the *Shrofs,* for gold and silver; when they give gold or silver for copper, they charge 240 *Dubs* for a *Sultany Pagoda,* which is a difference of 2½ per cent.

Weights.

According to the regulations of the late *Sultan,* the *Seer* is the standard weight and measure, and is of two kinds; called in the

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Mussulman language *Cucha Seer*, and *Pucka Seer*. Each is divided into halves, quarters, eighths, and sixteenths.

The *Cucha Seer* is the basis of the weights, and is equal to 24 *Sultany Rupees*, or to the 0.6067 part of a pound avoirdupois. On this is founded the following set of weights:

		lb.
1 *Seer* - - - - -	=	0.6067
5 *Seers* make 1 *Pansh Seer* - - -	=	3.0335
8 *Pansh Seers* = 1 *Managu*, or *Maund* - -	=	24.2680
20 *Managus* = 1 *Barua*, or *Candy* - -	=	485.3600

By the *Cucha* weight are sold *Jagory*, sugar, tamarinds, turmeric, ginger, mustard, capsicum, betel-nut, asafœtida, garlic, spices, pepper, cardamoms, sandal-wood, wool, silk, cotton, thread, ropes, honey, wax, lac, oil, *Ghee*, &c. &c. Oil and *Ghee* are frequently sold by measure. A *Seer* weight of oil is taken, and put into a cylindrical brass vessel, which is reduced to a size adequate to contain the exact quantity, and serves afterwards as a standard.

Measures.

The *Pucka Seer* is formed by mixing equal quantities of rice, *Udu*, *Hessaru*, *Huruli*, *Tovary*, *Avaray*, *Carlay*, *Ellu*, and wheat; and then by taking of the mixture 84 *Rupees* weight, which is put into a vessel that will exactly contain it when heaped. This serves for a standard, and measures 74.$\frac{8125}{10000}$ cubical inches. From this standard the Sultan established the following dry-measure, which he ordered to be used throughout his dominions.

Dry Measure.

Sultany Measure.		Cubical inches and Decimals.	Winchester Measure.		
			Bushels.	Pecks.	Gallons. and Decimals.
	1 *Seer* - - -	74.8125	00	00	0.3592
16 *Seers* -	1 *Colaga* or *Wocula*	1197	—	2	0.454
20 *Colagas*	1 *Candaca* - -	23940	11	—	0.108

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Notwithstanding the arbitrary power of the Sultan, he was by no means able, in this matter, to introduce any uniformity; the weight therefore differs in almost every village, and even in the same for different purposes. The *Candaca* indeed every where contains 20 *Colagas;* but the *Colaga* varies from 5 *Seers,* to the *Sultany* standard. In the *Ashta gram* the usual measure is:

Customary Measure in the *Ashta gram.*		Cubical inches and Decimals.	Winchester Measure.		
			Bushels.	Pecks.	Gallons, and Decimals.
14 *Seers* - -	1 *Colaga* - -	1047.375	—	1	1.89
20 *Colagas* -	1 *Candaca* -	20947.5	9	2	1.947

By this measure are sold all kinds of grain.

Long Measure.

The measure of length introduced by *Tippoo* was founded on the *Gujah,* equal to 38½ inches.

		Miles.	Furlongs.
6000 *Gujahs* = 1 *Hardary,* commonly by Europeans called a *Sultany Coss* - - -	=	3	5.$\frac{16}{100}$
4 *Hardaries* = 1 *Gavada,* or day's journey,	=	14	4.$\frac{64}{100}$
But the *Hardary* in common use is one fourth less, and is therefore equal to - -		2	5.87
The *Gavada,* or day's journey, - -	=	10	7.48

This measurement is called *Canter'raia,* or *Cantery,* as the English pronounce it.

None of the roads, however, are measured; but all the distances are formed by computation, and may therefore, in general, be estimated as much longer than they are commonly called.

Cloth and timber are usually measured by the purchaser's cubit; which may be considered, in all nations, as on an average eighteen inches.

CHAPTER II.

May 20, &c.

Quarries.

The natives here are either not well acquainted with the quarries of their country, or else pretend great ignorance concerning them. Although the country abounds in a variety of ornamental stones, I observe only two about *Seringapatam*, that have received a marble polish. The one is the black stone used in *Hyder's* monument, the quarry for which I shall hereafter have an opportunity of examining. The other is a most beautiful green stone, of which some bases for pillars were found in the palace; but no person can tell from whence they were brought. It has the appearance of quartz stained by copper; but is vitrifiable, *per se*, in a moderate heat, and gives out no copper to the vitriolic acid.

The two finest stones near *Seringapatam* are found at *Kingalu Copalu*, and *Cavary Cadu*, both near the northern branch of the river. The former is a compact granite, consisting of dark red felspar, red and yellowish quartz, and black mica. Some of the yellow particles appear to be felspar. The prevailing colour is owing to the dark red minute particles of felspar; but it also contains large concretions of the same stone, which have a bright red colour.

I had a specimen resembling this brought me (I do not know from what place), in which the red felspar predominated over the quartz, and the mica was in a very small proportion. The grains are small; it is also a very ornamental stone.

The stone from *Cavary Cadu* may be called either a hornstone porphyry, or a granatine. Its basis is a dark brown hornstone, in which are imbedded grey, yellow, and red felspars, and black shorl. Like the former, it is very compact.

The granite, of which the walls of *Mysore* and *Nuzerbar* have been formed, is loose-grained, and consists of glassy quartz, green and black mica, and reddish felspar. The mica is in large quantity, and the felspar in a smaller proportion than usual.

Specimens of a fine-grained granite were also brought me from some quarry in the neighbourhood, consisting of black mica, grey felspar, and yellowish brown quartz, which gives the predominating

colour. It is, probably, rather a gneiss than a granite, as a stratified appearance may be seen in one of the specimens; but, except in the rock, it is generally difficult to distinguish gneiss from granite.

At *Kingalu Copalu* is also found a very pretty, fine-grained granitell, consisting of grey felspar and black mica. It is evidently of a slaty texture, and would be a gneiss, if it contained quartz. It is of the kind of stone called by Saussure *Roche feuilletée*, which seems to be a useful distinction.

Near the *Durria Adaulut Baug*, on the island of *Seringapatam*, are found nodules of a stone called *Madi Cullu*, which is sometimes used for making gun-flints; these, however, are of a bad quality. Better ones, called *Cheky muky*, are said to be found near a village, called *Beü Cullu*, about twenty miles north and west from *Seringapatam*. The *Madi Cullu* is evidently a hornstone.

All these stones are very hard; yet the natives cut them into pillars, or flags, with tolerable facility. The same persons cut the stones out of the quarry, and afterwards work them up into the various fantastical shapes that are given to them in *Hindu* buildings. Good workers in stone get from 40 to 50 *Fanams* a month (from about 1*l.* 6*s.* 10½*d.* to 1*l.* 13*s.* 7*d.*). The drudgery is performed by common labourers. The granite may be cut by wedges in any direction, and to any length; but there is always one direction, in which it is found to split easiest; a number of small square holes, about an inch and a half in diameter, and four inches deep, are cut in the line by which the stone is meant to be split. The work is performed by a small steel punch of this shape, which is driven in by a heavy iron mallet. When the rock or stone is very long, or deep, these holes must be almost contiguous; but when the surface to be split is small, they may be at considerable distances. Blunt wedges of steel are then put in the holes, and each is struck upon in its turn, until the stone splits, which it does in a straight line to the very bottom of the mass or *stratum*. The surface is cut smooth with steel chisels, and, except in the very finest works,

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receives no higher polish. When a marble polish is to be given, it is done by rubbing the stone with cakes made of the adamantine spar, reduced to powder, and united with melted *lac.* The adamantine spar is here called *Curungada Cullu,* and is said to be found in lumps, which are immersed in rocks of a black stone, near *Nagamangula.* It must be observed, however, that at *Nagamangula* the people denied their having any such stone.

Near *Seringapatam* the *Congcar,* or limestone nodules, called there *Suna Cullu,* are very common, and are found of four different qualities, which, however, are generally intermixed in the same field. These four varieties, therefore, although they produce lime of different degrees of whiteness, and are distinguishable by the workmen, have the same origin. They have, no doubt, been deposited by water; and I have been told, by good authority in *Bengal,* that a field, after having been perfectly freed of these nodules, will in a few years be again filled with them. Whence then is this calcarious matter derived? There are here no rocks of limestone, or marble, from which it could have been washed. The whole calcarious matter to be found in *Mysore* is a *Tufa.* The quicklime is prepared by a class of people called *Uparu,* who are in general poor, and must receive advances to enable them to hire labourers. A labouring man at this work earns daily $\frac{3}{4}$ of a *Fanam,* almost a sixpence; and women, who perform much of the labour, get one third of that sum. They are allowed to collect the nodules, which are generally found by the sides of rivulets, and in waste ground, without paying any thing to the public; but in the late government they were frequently compelled to supply the Sultan at a low rate. The lime is always burned with charcoal. The dark-coloured quicklime, for building, costs, at *Seringapatam,* six *Fanams* a *Candaca,* or nearly five pence a bushel; finer lime, for white-washing, costs ten *Fanams,* or a little more than eight pence a bushel; and the finest, that is used for chewing with *betel,* costs twenty *Fanams* a *Candaca,* or one shilling and four pence half-penny a bushel.

Firewood at *Seringapatam* is a dear article, and the fewel most commonly used is cow-dung made up into cakes. This, indeed, is much used in every part of *India*, especially by men of rank; as, from the veneration paid to the cow, it is considered as by far the most pure substance that can be employed. Every herd of cattle, when at pasture, is attended by women, and these often of high cast, who with their hands gather up the dung, and carry it home in baskets. They then form it into cakes, about half an inch thick, and nine inches in diameter, and stick them on the walls to dry. So different, indeed, are *Hindu* notions of cleanliness from ours, that the walls of their best houses are frequently bedaubed with these cakes; and every morning numerous females, from all parts of the neighbourhood, bring for sale into *Seringapatam* baskets of this fewel.

Women of *Karnáta.*

Many females who carry large baskets of cow-dung on their heads are well-dressed, and elegantly formed girls. The dress of the *Karnátaca* women is indeed very becoming; and I have never seen finer forms than even the labouring women of that country frequently possess. Their necks and arms are in particular remarkably well shaped. Their nastiness, however, is disgusting; very few of the inhabitants above the *Ghats* being free from the itch; and their linen, being almost always dyed, is seldom washed.

Timber.

Timber, for building and furniture, may be had at *Seringapatam* of excellent quality; but it is dear; as it is brought from a great distance by land carriage. The principal supply comes from the neighbourhood of the western *Ghats.*

Plan for future investigations.

The plan which I have concerted with Colonel Close, for my future investigations, is, to proceed to the chief places of the *Rája's* dominions; and there to make myself master, so far as I shall be able, of the state of the country. I am then to draw up a set of queries applicable to the state of affairs, which *Purnea* will circulate among the *Amildars*, and procure their answers for my information. I shall follow a similar plan in the dominions immediately subject

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to the Company. The country toward the north-west being now in a very unsettled state, owing to the insurrection of *Dundia*, I shall defer my visit to that quarter to the last; with a view of giving the collectors of *Canara* time to answer such queries as I may propose to them, after having visited that province, which is the last part of the Company's territory that I intend to survey.

CHAPTER III.

FROM SERINGAPATAM TO BANGALORE.

CHAPTER III. June 6.

Appearance of the country.

HAVING finished my business at *Seringapatam*, on the 6th of June 1800, I left it early in the morning, and assembled my people at a small village, named *Gaynangur*, which is situated among the hills north from the river *Cávery*. The fields that are at present occupied having now been all ploughed, I observe that a large proportion of the arable land is left waste.

Minerals.

At *Gaynangur* there is much *talc;* but the laminæ are not large enough to serve for glass. It occupies the rents and small veins in an extensive chain of quartz, which is in a state of decomposition, and of which some parts are red, and some white. By digging deep, it is probable that larger pieces of the *talc* might be found. The inhabitants are wonderfully ignorant of the mineral productions of their country; for they did not know the limestone nodules, so common in this place, when shown to them in their own fields. All their lime comes from the city.

Mundium.

7th *June.*—I went to *Mundium.* Not above one third of the arable land appears to be now occupied.

Locusts.

The flight of locusts that I saw when I was here last (p. 57), settled at a village to the eastward, and ate up all the young *Jola.*

Watered land.

The rice land here is watered entirely from tanks or reservoirs; and the cultivation is never commenced till there be a sufficiency of water in the tank to ensure the crop. When the rains set in early, and fill the tank timely, the farmers have yearly two crops; but when the early part of the season is dry, they take a *Hainu* crop of *Wull' Ellu, Udu, Hessaru,* or *Carlay;* and afterwards, when the tank is filled, plough for a crop of *Caru* rice.

CHAPTER III.

June 7.
Rice.

The kinds of rice cultivated here are as follow:

Names.	Ripening.	Names.	Ripening.
Doda Butta	5 months.	*Conawaly*	5 months.
Putu Butta	5 months.	*Mulu Butta*	3 months.
Hotay Caimbuti	5 months.		

Every kind may be cultivated, either as *Hainu* or *Caru.* The *Mulu Butta* is never sown, except when there is a deficiency of water. The only cultivation here is the *Mola Butta,* or sprouted-seed; the manner of preparing which is as follows: Steep the seed in water all night; next morning mix it with cow-dung, and fresh plants of the *Tumbay Sopu,* or *Phlomis esculenta,* Roxb. MSS., and put it in a *Mudy.* On the *Mudy* place a heavy stone, and on the two following days sprinkle it with water. On the third day it is fit for sowing.

For the *Hainu* crop, the ploughings, from about the 1st of June till the 11th of July, are nine in number. Dung and leaves are then put on the field, and trampled into the mud. The water is now let off, until no more than a depth of one inch remains; afterwards, the seed is sown, and a slight sprinkling of dung is laid over it. A watering once in three days is then given; and after the third time, the field is inundated till the grain ripens. The weeds are removed on the 20th, 40th, and 60th days. The *Caru* cultivation is exactly the same, only the ploughings are between the 21st of November, and the 20th of December.

In both kinds of cultivation, and in every species of rice, an equal quantity of seed is sown on the same extent of ground, and the produce is nearly equal. By measuring a plot of ground, and reducing to the English standards the farmer's estimate of its seed and produce in a middling good crop, I find the seed to be for an acre, 1 bushel 1,624 gallon, and the produce to be 36 bushels 0,720 gallon, or thirty fold. The quantity of seed here is smaller, and the produce greater, than in the land watered by the river *Cávery.*

CHAPTER III.

June 8. *Madura.* Weather.

8th *June.*—I went to *Madura.* Since the 4th instant, when we had a heavy storm of wind, rain, and thunder, the weather has been remarkably pleasant. The sun is in general clouded, and the temperature of the air like moderate summer weather in England.

The proportion of ground in actual cultivation does not appear to exceed one tenth part of the country. At *Madura* there is a very fine reservoir, which indeed waters more ground than the inhabitants can cultivate; for they are much reduced in number. In *Hyder's* time they amounted to 250 houses; and they rose to 400 in the early part of the Sultan's government. By the expeditions of Lord Cornwallis the houses sunk to 250, and *Tippoo's* late oppressions have reduced them to 100. The people, however, seem to be much satisfied with the protection they enjoy under the British forces, and are betaking themselves with industry to the re-establishment of their country.

Depopulation.

The reservoir, and an old pagoda in the fort, are said to be the work of *Vishnu Verdana Raya,* a prince who, about 700 years ago, had very extensive dominions in this country. The reservoir is a very valuable work, and ought to render this prince's name venerable to the latest posterity. It receives a supply from the river by means of a dam and canal; and, with the repairs which it is now about to receive, is expected to be able to supply with water, through the whole year, all the fields under the level of its bank. The extent of this land is very considerable; but the supply of water having been for some years deficient, the farmers have been obliged, on many fields, to content themselves with a *Hainu* crop of *Carlay,* and a *Caru* crop of *Jola.*

Reservoir.

Irrigation.

Two crops of rice are never taken from the same field in one year; but in order to divide the labour, part of the rice ground is cultivated in the *Hainu,* and part in the *Caru* season.

Rice.

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June 8.

The following are the kinds of rice cultivated here:

NAMES.	Months required to bring the Seed to maturity.	Seed required for one Acre.			Produce of one Acre 1st Quality of Soil.			Increase on one Seed.	Produce of one Acre 2d Quality of Soil.			Increase on one Seed.	Produce of one Acre 3d Quality of Soil.			Increase on one Seed.
		Bushels.	Pecks.	Gallons. Decimal parts.	Bushels.	Pecks.	Gallons. Decimal parts.		Bushels.	Pecks.	Gallons. Decimal parts.		Bushels.	Pecks.	Gallons. Decimal parts.	
Hotay Caimbuti -	5	1	0	1.467	59	1	0.47	100	41	2	0.25	70	23	2	1.8	40
Doda or *Bily Butta*	5	1	0	1.467	59	1	0.47	100	41	2	0.25	70	23	2	1.8	40
Arsina Caimbuti -	4½	0	3	0.627	47	1	1.6	114	35	2	0.7	84	17	2	1.52	42
Putu Butta - - -	4½	0	3	0.627	47	1	1.6	114	35	2	0.7	84	17	2	1.52	42
Yalic Raja - - -	4½	0	3	0.627	47	1	1.6	114	35	2	0.7	84	17	2	1.52	42
Murargilli - - -	6	0	3	0.627	47	1	1.6	114	35	2	0.7	84	17	2	1.52	42
Conawaly - - -	5	0	3	0.627	47	1	1.6	114	35	2	0.7	84	17	2	1.52	42
Sucadass - - -	4½	0	3	0.627	47	1	1.6	114	35	2	0.7	84	17	2	1.52	42

This estimate was formed by taking a farmer to his own field, asking him how much seed it required, and measuring it. The measures were then changed into English; and the other farmers were interrogated concerning the quantity that each kind of rice should produce on an equal extent of the different kinds of soil. The produce of the same kind of rice, in the same soil, whether cultivated as *Hainu* or *Caru*, or as *Mola* or *Nati*, should be nearly the same.

All the kinds of rice may be raised either as *Hainu* or *Caru* crops, or by the *Mola* or *Nati* modes of cultivation. No *Puneji* is ever attempted. The *Mola* cultivation is exactly the same as at *Mundium*. The seedlings for transplantation, in the *Nati* cultivation, are always raised as *Niragy*.

Sugar-cane.

The cultivation of sugar-cane being somewhat different from that used at *Seringapatam*, I shall enter into the particulars. The

only cane cultivated here is the *Restali.* The preparation of the ground occupies about three months previous to the end of *Phalguna,* which happened this year on the 14th of March. The steps taken in this preparation are as follow. Water the field. Allow it three days to dry, then plough it six times, and break the clods with the *Col Kudáli.* Manure with leaves, and plough again; manure with dung, and plough three times. The field, having been thus prepared, is divided into beds, as at *Seringapatam* (p. 96). Four holes, about a cubit's distance from each other, are formed in the breadth of each bed. Two cuttings of three joints each, are put in each hole, and covered first with an inch of earth, and then with five inches of dung. Water is given to each hole, and every morning for fifteen days this is repeated. The holes are then dug up with a sharp stick, and more dung is given. For fifteen days more the watering must be again repeated. The whole field must then be hoed with the *Yella Kudáli,* and in each bed a winding channel must be formed, passing through between the rows of holes, as in the explanatory sketch (Fig. 7). When there is no rain, these channels must once a week be filled with water. At the end of a month the ground must be again hoed, and the channels formed afresh. Between the 24th of May and the 22d of June, the canes become a cubit high. The plants of each hole must then be tied together with a binding of leaves. A third hoeing is now given, and the earth heaped up round the roots of the cane. The waterings once a week must be continued. When the plants have grown another cubit, which will be about the beginning of September, they must be tied a second time; and again a third time about the beginning of November, the watering once a week having been regularly continued. About the end of December, the works are repaired; in the tenth month from planting the crop commences, and must be finished in the eleventh. The cane is succeeded by *Sesamum,* that by rice, and that again by sugar. The *Sesamum* and rice occupy one year, and the sugar-cane another, alternately. The

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best fields for this cultivation are composed of a sandy red soil. The low black clays are reserved entirely for rice.

Saline earth.

In this part of the country much of the soil is impregnated with saline matter, and called *Soulu munnu.* Of this there are two kinds; one chiefly impregnated with carbonate of soda, the other with the muriates of soda and magnesia. The latter would produce nothing: the former is cultivated, although it produces poor crops. The manure used for it is formed of the branches of the *Euphorbium Tirucalli,* which in this part of the country are never used on any other kind of rice-ground. In the country near *Madras* they are, for all soils, the most esteemed manure.

Sri Vaishnavam Bráhmans.

Having procured a *Sri Vaishnavam Bráhman,* esteemed a man of great learning, I examined him concerning the peculiarities of his sect; but with very little satisfaction. However well these men may be instructed in certain dogmas, and the art of disputation, they are not qualified to give any satisfactory information concerning the origin of their order, or the means by which it came to prevail over others; for, of the sectaries which differ from themselves, such as those of *Budha, Jaina,* or *Siva,* they profess an almost total ignorance, and sovereign contempt.

This man allows, that in the existing *Védas* no mention is made of any division of the *Bráhmans* into sects; but he contends, that from the very beginning of the universe all the three sects of *Smartal, Aayngar,* and *Madual,* existed; and he says, that they are mentioned in the eighteen *Puránas,* which, next to the *Védas,* are by the *Bráhmans* esteemed as most holy. Although the *Bráhmans* have existed from the beginning of time, yet in the ninth century of the era of *Sálivàhana,* or tenth century of Christianity, twenty-one heretical sects had arisen in *Bhárata-khanda,* and had turned from the true worship almost the whole of its inhabitants. Each of these sects had a *Bhásha,* or book explaining their doctrine, founded partly on dogmas derived from the *Védas,* and explained in the last six of the eighteen *Puránas,* and partly on tenets contrary

to the books esteemed sacred by the *Bráhmans.* The most remarkable of these sects were the *Buddhists*, the *Jainas*, and the *Sarvakas*. CHAPTER III. June 8.

About this time arose a celebrated doctor of the *Bráhmans*, named *Sankara Achárya*, who belonged to the sect of *Siva*. The eighteen *Puránas* are divided into three distinct doctrines, called *Satwika*, *Rájasa*, and *Támasa*; the *principles* of which, from their tendency, are compared to God, to a king, and to the devil; the first and last resembling God and the Evil Spirit, while the *Rájasa* is of a princely nature, partly good and partly bad. *Sankara Achárya*, as a *Smartal*, acknowledged the two first parts to be the proper guide for the conduct of *Bráhmans;* and wrote a *Bhásha*, or commentary, called after his own name; in which he explained the doctrine of the first twelve of the eighteen *Puránas*, so as to reconcile it with the tenets of six of the prevailing sects, of whom the most remarkable were the *Savaram*, *Ganapatyam*, *Saivam*, and *Vaishnavum*. By this method he gained a strong party; and having, among others, brought over the prince of *Sringa-giri*, where he lived, he commenced a violent persecution against the heretical doctrines.

In the year of *Sálivához* 932 (A. D. 1009), at *Sri Permaturu*, or *Srivaram P'huthur*, near *Madras*, was born *Ráma Anuja Achárya* of the *Sri Vaishnavam* sect of *Bráhmans*, and who, of course, followed the authority of the first six only of the eighteen *Puránas*. These six are called *Vaishnavam*, *Náradyam*, *Bágawatam*, *Garudam*, *Padmam*, and *Varáham*. The second division of the eighteen *Puránas* is read by this sect of *Bráhmans*, although they do not found on it any of their doctrines. They look with horror on the third division. On arriving at the age of discretion, *Ráma Anuja* became a *Sannyási*, and wrote a commentary, in which he confuted the works of *Sankara Achárya*, and demonstrated, that of the twenty-one sects, the only one that ought to be tolerated was that called *Vaishnavam*. The commentary of *Ráma Anuja* is now the chief guide of the *Sri*

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Vaishnavam Bráhmans. They worship *Vishnu,* and the gods of his family only, and all over the *Decan* are almost exclusively the officiating priests in the temples of these deities. They allege *Brahmá* to be a son of *Vishnu,* and *Siva* the son of *Brahmá,* and consider them as the creative and destructive powers in the universe; but they abhor the worship of these gods. *Vishnu* they consider as the same with *Para Brahmă,* or the Supreme Being: yet they worship him in nine only of his ten incarnations. *Budha,* although the tenth incarnation of *Vishnu,* is never worshipped by them, nor, I believe, by any *Bráhman.* The reason assigned for this is as follows: one of the *Asuras,* or demons, named *Tripura,* possessed a city, the inhabitants of which were very troublesome to the inhabitants of *Brahma Lóka,* heaven of *Brahmá,* who attempted in vain to take the place; it being destined not to fall, so long as the women who resided in it should preserve their chastity, which hitherto had been inviolate. The angels at length offered up their prayers to *Vishnu,* who took upon himself the form of a most beautiful young man, and became *Budha Avatára.* Entering then into the city, he danced naked before the women, and inspired them with loose desires; so that the fortress, being no longer defended by the shield of purity, soon fell a prey to the angéls. As the *Bráhmans* cannot defend this action of the god, they never invoke him by the name or in the form of *Budha Avatára.*

Ráma Anuja Achárya having had great success both against the *Smartal,* and the heretical sects, especially the *Jainas,* formed a hierarchy for his followers. He divided the whole into eighty-four portions; and ordered, that each portion, and their descendents, should be subject to a *Guru* or *Swámalu* of his appointment, and to the successors of this *Guru.* The number of *Gurus* belonging to this sect are therefore eighty-four; of whom five are *Sannyási,* and seventy-nine are married hereditary chiefs.

The *Matams,* or places where the five *Sannyási Gurus* chiefly reside, are *Ahobalum, Totadri* near *Rámëswara, Tripathi, Sri Rangam,*

and *Kunji*. When one of these *Sannyásis* observes the approach of death, he appoints some *Vidwansa*, or man of learning and piety, to be his successor. If the person chosen give his consent, he must forsake his wife, children, and goods, part of which goes to his children, and part is given in charity; that is to say, to the *Bráhmans*. The new *Sannyási* shaves his head, and throws aside the thread by which *Bráhmans* are distinguished. The virtues and powers belonging to his high rank he receives along with an *Upadésa*, which is delivered to him by his predecessor. *Upadésa* is a mysterious sentence, which the *Hindus* receive from their *Gurus*, and constantly mutter when at their devotions. That of the *Bráhmans* is entirely different from what is bestowed on the lower casts; and is again very inferior to that given to the *Sannyási Gurus*, which, according to them, has most wonderful powers. In case of sudden death, the followers of the *Mata* meet, and choose from among themselves a *Sannyási*, who gets an *Upadésa* from one of the others. These *Gurus* frequently give an *Upadésa*, and some images, to a favourite disciple, and appoint him a kind of deputy to manage their affairs at a distance. Thus the *Ahobalam Swámalu* has sent a deputy to *Mailcotay*, who resides at that great place of *Hindu* worship, and there watches over the interests of his superior. These deputies observe the rules of *Sannyási*, but have no power to appoint a successor. When one of them dies, the followers send back the images to their *Guru*, and request that he would depute another representative.

Among the *Sri Vaishnavam Bráhmans* the office of an hereditary *Guru* descends in the male line according to primogeniture; but, when one of them has no children, he must adopt his nearest male relation, who succeeds him as his son. Kindred by the female line is considered as not forming a tie of blood. These hereditary chiefs, once in two or three years, make a circuit round the places where their followers live. They also send agents to transact their business. An infant may succeed, and during his minority the business

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is carried on by the nearest male relation, or by some other *Vaidika Bráhman*, whom the family appoints.

The *Sannyásis* and hereditary *Gurus* seem to be totally independent of each other, and to possess nearly the same authority and powers over their followers. When a *Guru* of any sect comes near a place, the whole inhabitants of a pure descent, whether they be his followers or not, must go out to receive him with the utmost respect. What is meant by the followers of a *Guru*, are certain families attached to him, to whom he performs certain ceremonies, and over whom, in all matters connected with religion, he possesses a jurisdiction. In general, every man follows the *Guru* of his father: but this seems to be a voluntary submission; and it is commonly allowed, that a man, whenever he pleases, may change his *Guru*. The ceremonies bestowed by the *Sri Vaishnavam Gurus* on their followers are chiefly *Upadésa* and *Chakrántikam*. The *Upadésa* I have already explained. It is delivered orally to the follower; and to write it down, or reveal it, are crimes of such an enormous magnitude as to be quite unknown. The *Chakrántikam* is performed with the spear of the god *Vishnu*, which is made hot, and applied by the *Guru* to the shoulder of the disciple, so as to burn the skin. During life this is frequently repeated; the *Upadésa* is only delivered once.

Neither of these ceremonies are ever bestowed on a person of an impure birth; so that the *Whalliaru* and *Madigaru* must content themselves with praying to God for his blessing to avert evil, or bestow good. This however not being satisfactory, these poor people frequently attack the *Bráhmans* for an *Upadésa*. In order to be quit of their importunity, the *Bráhmans* sometimes tell them the name of any god, the constant muttering of which pleases the man much better, than the offering up his requests to the deity in the pure language of the heart. So powerful is the influence of ceremony over that of reason.

In their judicial capacity the *Gurus* possess great authority. They take cognizance of all omissions of ceremonies, and actions that are

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June 8.

contrary to the rules of cast. Small delinquencies they punish by pouring cow-dung and water on the head of the guilty person, by fine, and by whipping. For great offences they excommunicate the culprit; which is done by shaving his head. This excludes a man from all society, even from that of his nearest connections; for his very wife would incur a similar punishment by giving him any assistance. The excommunication may be removed by the *Guru;* in which case he purifies the repentant sinner by a copious draught of cow's urine. Though the deputies have no proper authority to punish delinquents, yet they frequently make people voluntarily submit to their correction. They threaten any person to send a complaint to his *Guru* of some crime laid to his charge, and an order to proceed to the residence of the *Guru* to answer the complaint. Most persons, however, choose to submit to whatever the deputy dictates, rather than undertake the trouble of a long journey; at the end of which they might be more severely punished by the *Guru,* than they would have been at home by the deputy.

When a *Guru* is accused of any misdemeanor, he is called before a *Trimatustaru,* or assembly of the most eminent *Vaidika Bráhmans* of all the three sects, who have the power of inflicting six different punishments, all of which are very severe.

June 9. *Chenapattana Rajas.*

9th *June.*—I went to *Chinapátam,* or *Chenapattana,* which was formerly the residence of a *Polygar* family called *Jacadéva Rayas.* They were *Teliga Banijigaru,* and seem to have risen into power about five centuries ago. They continued till very lately possessed of considerable territories; and were reduced by the *Mysore Rajas,* no long time before these, in their turn, became subject to the Mussulmans. The direct heir of the family, in the male line, now resides here in great poverty; and, being a petty trader, is called *Jiva Raja Chitty.*

Manufacture of glass.

Glass-ware is one of the manufactures of this place. It is made by two operations. In the first, from the raw materials, are formed masses of glass; in the second, these masses are wrought up into small bottles, and ornamental rings for the arms of women.

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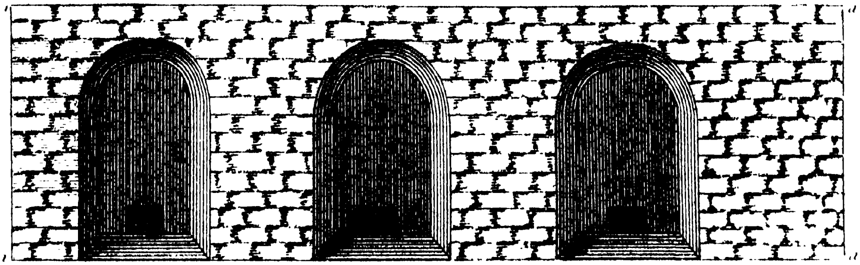
The rude sketches in the Figures 12 and 13, will assist the reader to understand the following account of the furnaces by which the first operation is performed. Two or three of them are in general constructed in the same building (a a a a), which is erected in form of a terrace against one of the walls of a yard; and which, where there are three furnaces, may be six feet high, twelve broad, and twenty-six long. The furnace (b) is arched, and in the summit has a round opening (c) about two feet in diameter. This is covered by a flat stone (d), in which there is an aperture (e). Near the surface of the ground is a platform (f f) which has an aperture in its centre (l). This divides the furnace into two cavities, the lower of which (g) serves for the fewel, which is introduced by an opening (h) at the bottom of a niche (i i i) that is formed in the front of the terrace. The crucibles containing the materials (k k) are introduced by the opening (c) in the summit of the furnace, and placed in a circle on the platform (f f). The opening (c) is then covered with the flat stone (d), and the air is excluded by covering the stone with moist clay. The small hole (e), however, is left open. The fire place (g) is then filled with wood, and the fire is managed according to the nature of the materials which the crucibles contain.

For making green glass, take of the following articles according to apothecary's weight:

	lb.	oz.	dr.	scr.	gr.
Broken glass - - - - - - - -	14	9	0	0	0
Banaji Callu, powdered white quartz - - -	14	9	0	0	0
Loha (an old button like brass was given to me as a specimen) - - - - - - -	0	3	2	1	13
Copper - - - - - - - - - -	0	2	9	1	16
Caricullu, iron ore with manganese - -	0	2	1	2	2
Soulu, or impure *soda* - - - - -	29	6	0	0	0
lb.	58	11	5	2	11

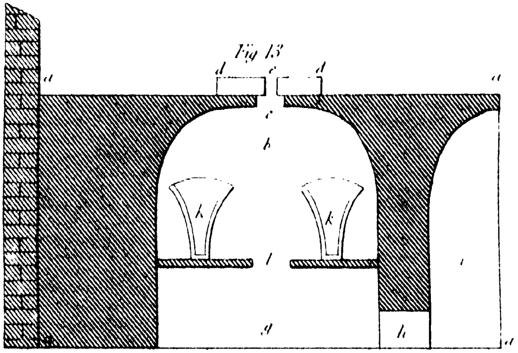
This is the charge for one crucible.

Fig 12.



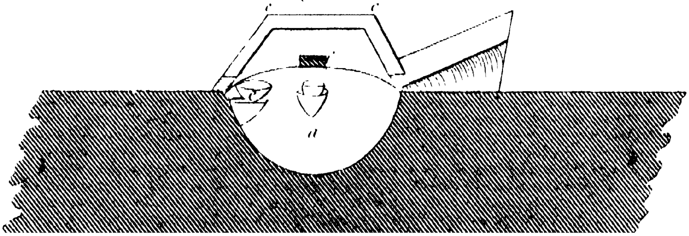
Front view of three glass furnaces

Fig 13.



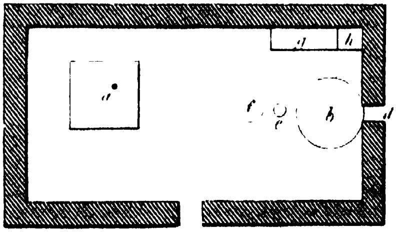
Transverse section of a glass furnace

Fig 14.



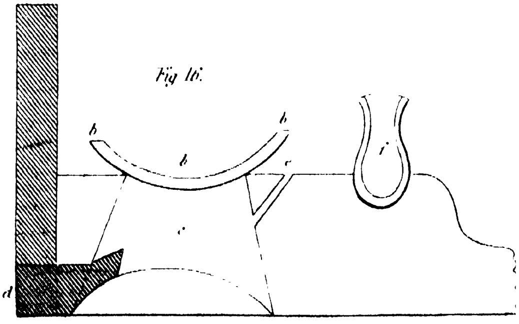
Vertical section of a glass blower's fire-place

Fig 15.



Ground plan of a sugar house

Fig 16.



Vertical section of the furnace and boiler

In making red glass the *Loha* is left out. Forty-four crucibles stand in one furnace. A small quantity of the materials is assayed in the furnace used for blowing the glass; and, if the *soda* prevails too much, an addition is made to the quartz.

In order to vitrify these materials, burn on the first day ten bundles of firewood. Next day put out the fire by stopping the air. Next day put in fresh wood, and keep up the fire for eight days; but no supply of fewel is given at night. The fire of course goes out towards morning. Afterwards the fire must be kept up night and day, till the glass be melted; which is known by putting an iron rod into the crucible through the small hole (e) in the flat stone. This requires from four to six days more. The fire at first is put out with a view of preventing, by this means, the glass from being injured by the smoke: but it is not easy to conceive any chemical operation more injudiciously conducted than this is. The alkali is never saturated, and effloresces from the glass, when that is kept any length of time. Each crucible ought to produce 41 lb. 3 oz. 4 dr. 2 scr. 8 gr. of glass, worth seven *Sultany Fanams* or 4*s.* 8½*d.*

The contents of one crucible for black glass, are

	lb.	oz.	dr.
Quartz - - - - -	14	9	
Soda - - - - -	29	6	
Broken glass - - - -	22	1	4
lb.	66	4	4

In eight or nine days this is vitrified by a fire burning constantly, and produces about 44¼ lb. worth 4½ *Fanams,* or a little more than three shillings.

The ornamental rings are made as follows (see Fig. 14): A circular cavity (a), about two feet and a half in diameter, is dug in the floor of the work-shop (b b), and is covered by a flat dome of baked clay (c c). In this are four perforations, one of which cannot be seen in the sketch, as it is a section. By one of these the fewel, which is charcoal, is introduced by an inclined plane (d). The

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three other openings (f f) are for the workmen to take out the glass, which is put in a flat earthen crucible (e e) like a soup-plate. When the glass is melted, two workmen sit down at each of the three openings, six men in all to each furnace, with an assistant to keep up the fire. One man of each pair introduces the point of an iron rod, and turns it round among the melted glass, till a sufficient quantity adheres. He then takes out the rod, and with one hand gives it a quick rotatory motion on a stone, that is placed before him. With the other hand he applies a knife, and forms the glass into a ring round the point of the rod. He then pushes the ring into the furnace, and there gives it a quick rotatory motion, so that the liquid glass by the centrifugal force assumes an elliptic form. The rod is then withdrawn, and the ring is dilated by inserting the point of the knife between it and the rod. It is then pushed on the point of a cone managed by the other workman, who also gives his cone a rotatory motion, and pushes up the ring, till it becomes of a proper size. He then polishes it, while it is cooling, by applying his knife to the surface, all the while continuing the rotatory motion. The work is carried on with considerable dexterity, and the two men make about ten rings in a minute.

Rings on the arms worn as ornaments by the *Hindu* women.

These rings are universally worn by the women of the *Decan*, as an ornament on the wrists; and their applying closely to the arm is considered as a mark of delicacy and beauty; for they must of course, be passed over the hand. In doing this, a girl seldom escapes without drawing blood, and rubbing part of the skin from her hand: and as every well-dressed girl has a number of rings on each arm, and as these are frequently breaking, the poor creatures suffer much from their love of admiration: but in the female breast, this is a more powerful motive than the dread of any common pain.

Soda, or fossile alkali.

The *soda*, or fossile alkali, is found in the soil near *Madura*, and at *Gutalu*, a town east from *Mundium*. In the hot season the glass-makers go to these places, and prepare as much as they want. They collect the *Soulu Munnu*, or saline earth, into heaps; and near these

dig three pits, which I shall call A, B, and C. The pit A in the center is a square of four cubits in extent, and one foot in depth. The pit B is circular, three and a half cubits in diameter, and two and a half in depth. The pit C is a small circular cavity capable of containing four or five pots of water, and communicates with the pit A by means of a small channel, which can be occasionally shut up with clay. When all things are ready, the pit B is filled nearly with *Soulu Munnu*, and then is added a little water, which is mixed well with the saline earth, so as to form thin mud. This is then put into the pit A for two hours; when the earth subsides, and leaves a clear water impregnated with alkali, which is allowed to run off into the pit C. Some of this water is then put into a fourth pit, and mixed with cow-dung. The mixture is allowed to putrify for three days, and is then spread thin on forty mats by means of the twig of a tree, which retains its leaves. When dry, this forms a very thin crust on the mats, which are then laid on the ground, and exposed to the sun. Every day afterwards these mats are sprinkled with fifty pots of the clear brine from the pit C, procured as before mentioned. This is continued for twenty days; when a cake of *soda*, about half an inch in thickness, is formed all over the mats. It is very impure, and sells for two *Paissas* the *Cucha Seer*, or 13*s.* 9¼*d.* the hundred weight. It is used for washing, and for making glass. Large quantities of it are said to be brought from *Ellanduru*, a town about forty miles east from *Mysore*.

Steel wire for the strings of musical instruments.

Another manufacture, for which *Chinapatam* is celebrated, is that of steel wire for the strings of musical instruments, which are in great esteem, and are sent to remote parts of *India*. A very distinct account of this manufacture was given me by Colonel Close, who procured it from Mr. Ingledew, surgeon to the Resident in *Mysore*. I shall preserve his words, only reducing the weights and prices to the English standard.

" The mode of preparing country steel, before it is drawn into wire, is by taking any quantity, and heating it in a charcoal fire

CHAPTER III. June 9. until it be red hot; when it is taken out, beaten into a long thin plate upwards of an inch in breadth, and rolled up into an oval or round form, leaving a small space between each of the folds. It is then put into the fire again, well heated, and hammered out as before. This process is repeated eight times, by which the weight of the steel is reduced to one fifth of the original quantity.

"When this is done, it is ready for being formed into wire, and is again heated, and beat into small square rods. It is heated again, and drawn through a small hole, in a plate of common steel, into wire by means of pincers. In this plate there are several holes, of various dimensions, for the purpose of gradually reducing the wire to the size required.

"After it has been once drawn, it is necessary to heat it again, before it can be drawn a second time, which is done through a hole somewhat smaller than the former one. It afterwards requires no farther heat; but is drawn eight or ten times more until it be sufficiently fine; and this is partly ascertained by the sound it gives, when struck by the finger on being stretched out.

"At the time of drawing it through the plates, a small quantity of oil is applied to it, to make it pass easily.

"The length of time taken up in making four pieces of wire, nearly of the same weight, and as fine as the larger of the specimens" (its weight 169 grains, its fineness 2 grains a foot), "from the time of commencing the preparation of the steel, will occupy one man four days. One *Rupee* weight (177 grains) of this wire sells for one *Sultany Fanam* (8*d.*). The price of the smaller one is double the other, being much finer.

"The steel of the *Bazar*, or market, is sold at the rate of one *Seer* for one small silver *Fanam* (or near 3¼*d.* a pound). When refined, and ready for being made into wire, one *Seer* might be purchased for eight *Sultany Fanams* (or 2*s.* 1½*d.* a pound); but there being no demand for it, it has no sale."

June 10. 10th *June.*—I passed this day in examining the forests of this

neighbourhood; but shall defer giving an account of the particulars, till I have visited some other parts of the same chain of woody hills, and shall be thus enabled to give at once a view of the whole. Owing to the badness of the soil in the hills near *Chinapatam*, few of the trees come to great perfection.

June 11.

11th *June*.—I remained at *Chinapatam*, taking an account of the palm gardens in the vicinity. A tract of land runs near this from *Madura* towards *Magadi*, which is about eighteen miles in length, and varies from one mile to a quarter of a mile in width. The whole of this, except a few barren spots intersecting it, is planted with coco-nut and betel-nut palms. All this ground might be cultivated for rice, and has a supply of water from reservoirs; but the plantations are much more valuable.

Palm gardens.

Areca, or betel-nut palm.

The betel-nut palm, or *Areca*, called by the Mussulmans *Supári*, requires a rich black soil, and is planted in such places only as produce water on digging a well two cubits deep. There are here two varieties of the *Areca*, the one bearing large, and the other small nuts. The produce of both kinds is nearly equal in value and quantity. The nut of this country is said by the people here to be as good as any brought to market at *Madras*, that from *Coimbetore* excepted; but I afterwards found that they were misinformed.

Manner of forming a betel-nut garden.

The following account was given me, by the proprietors, of the manner in which they make a new betel-nut garden.

A plot of ground, having been selected for a nursery, is dug to the depth of one cubit. When the seed is ripe, which happens between the 15th of January and the 13th of February, trenches must be formed in the nursery a span broad, and a cubit deep. The trenches are half filled up with sand, on the surface of which is placed a row of the ripe betel-nuts. These are again covered with five inches of sand, and two inches of rich black mould, and watered once in three days for four months, at which time they are fit for being transplanted into the garden.

The garden having been fenced with a hedge of *Euphorbium*

CHAPTER III. June 11. *Tirucalli*, or *Jatropha Curcas*, is dug to the depth of a cubit at the same time with the nursery, and planted with rows of plantain-trees at the distance of three cubits. When the young palms are fit for being transplanted, the garden must be dug again to the former depth, and two young *Arecas* must be set in one hole between every two plantain-trees. When there is no rain, they must have water every third day. When the rainy season commences, a trench must be dug between every third row of trees; that is to say, so as between every trench to form beds, each of which contains two rows of the *Areca*. These trenches serve to carry off superfluous water, and to bring a supply from the reservoir, when wanted. The garden must be dug twice a year, to keep it clear of weeds. At the end of three years the original plantain-trees are removed, and a row is set in the middle of each bed, and kept up ever afterwards, in order to preserve a coolness at the roots of the *Areca*. When the betel-nut trees are about five feet high, which requires about five years, they receive no more water than what is given to the plantain-trees, which in dry weather must be watered twice a month. The tree, when five years old, begins to produce fruit, and lives from thirty to forty years.

Each tree pushes out three or four spadices, which from about the 21st of August until the 16th of November, become fit for cutting, at different intervals of twenty or thirty days, one after the other. When the nuts have been cut, the skin is removed with an iron knife, and a quantity is put into a pot with some water, in which it must be boiled till the eyes be separated. The nut is then cut into three or four pieces, and for three or four days dried on mats exposed to the sun, when it becomes fit for sale. Each tree is reckoned to produce yearly the value of one *Sultany Fanam*, or 8 pence, which is the usual price of two *Cucha Seers*, or nearly $1\frac{1}{7}$ lb. Squirrels are very troublesome, and destroy a great deal of the fruit; but it is considered as sinful to kill them.

These plantations are interspersed with coco-nut, mango, lime,

June 11.

jack, and *Humteca (Spondias dulcis)* trees; which add to the shade, and to the freshness of the soil. Under the trees are cultivated ginger, and all kinds of fruits and roots that are called *Tarkári;* but no greens, or *Sopu.* The whole, however, is kept in a very slovenly manner; only the fences are good.

The betel-nut that is raised here, is sold to the merchants and shop-keepers for ready money; the farmers never receive any advance.

Coco-nut palm.

At *Chinapatam* there are four varieties of the coco-nut; 1st, red; 2d, red, mixed with green; 3d, light green; and 4th, dark green. These varieties are permanent; but, although the red is reckoned somewhat better than the others, they are commonly sold promiscuously. Their produce is nearly the same.

The soil does not answer, unless water can be had on digging into it to the depth of three or four cubits; and in such situations a light sandy soil is the best. The black clay called *Eray* is the next best soil. The worst is the red clay called *Cabbay;* but with proper cultivation all the three soils answer tolerably well.

Manner of forming a coco-nut garden.

The manner of forming a new coco-nut garden is as follows:

The nuts intended for seed must be allowed to ripen until they fall from the tree; and must then be dried in the open air for a month, without having the husk removed. A plot for a nursery is then dug to the depth of two feet, and the soil is allowed to dry three days. On the *Ugadi* feast (26th March) remove one foot of earth from the nursery, and cover the surface of the plot with eight inches of sand. On this, place the nuts close to each other, with the end containing the eye uppermost. Cover them with three inches of sand, and two of earth. If the supply of water be from a well, the plot must once a day be watered; but, if a more copious supply can be had from a reservoir, one watering in the three days is sufficient. In three months the seedlings are fit for being transplanted. By this time the garden must have been enclosed, and hoed to the depth of two feet. Holes are then dug, for the reception of the

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seedlings, at twenty feet distance from each other in all directions; for when planted nearer, they do not thrive. The holes are two feet deep, and a cubit wide. At the bottom is put sand seven inches deep, and on this is placed the nut with the young tree adhering to it. Sand is now put in until it rises two inches above the nut, and then the hole is filled with earth and a little dung. Every day for three years, except when it rains, the young trees must have water. While the trees are young, the garden is cultivated for all kinds of *Tarkári* stuffs, which serves for weeding. When they have grown up, the ground is ploughed, and cultivated for sugar-cane, betel-leaf, *Cara Butta* rice, *Sesamum*, *Huts' Ellu*, *Tadaguny*, *Carlay*, *Hessaru*, *Udu*, *Huruli*, *Shamay*, *Navonay*, or *Ragy*, according as the soil is fitted for either of these crops. Mango and jack trees are also planted in these gardens, but greatly to their prejudice; for no cultivation can be carried on under these trees.

The coco-nut palm begins to produce when seven or eight years old, and lives so long that its period of duration cannot readily be ascertained. I was shown some that were said to have been planted by *Jacadeva Raya*, and the people believe that they will live for a thousand years. Young trees, however, produce most fruit, which comes forward at all seasons of the year. A good tree gives annually a hundred nuts. A few are cut green on account of the juice, which is used as drink; but by far the greater part are allowed to arrive at some degree of maturity, although not to full ripeness; for then the kernel would become useless. The cultivator in general removes both husk and shell, and sells nothing but the kernel to the merchants, as they transport them even so far as to *Madras*.

The kernel of the coco-nut enters much into the food of the richer natives, both in its raw state, and dressed after various fashions; and it yields by far the finest oil of *India*, provided the nut is fresh, and the oil used soon after expression. The husks of the green coco-nuts are sold to the *Whalliaru* for making ropes, at the rate of two thousand the *Sultany Fanam* (about 8*d.*); but the

husk of the ripe nut is not fit for this purpose. At *Chinapatam*, *Túri*, or palm wine, is never extracted from the coco-nut tree, as the practice injures its growth. Two old leaves in general fall annually from every tree, and each of these forms two of the mats which are used in thatching huts. These mats sell at sixty for the *Sultany Fanam*, and are put on as the first coat, which is afterwards covered with grass or straw: but in this neighbourhood thatched roofs are not much esteemed.

Mats for thatching huts.

Merchants from *Seringapatam*, *Bangalore*, *Colar*, *Ballapura*, *Hosso-cotay*, and *Devund-hully*, come here to purchase the produce of these gardens.

Tenures of palm gardens.

Although the soil is considered as the property of the government, yet when a man plants a palm garden, the trees are considered as his property, and he may at pleasure sell them. He pays one half of the produce to the government, as ground-rent; but pays nothing for the fruit-trees that are intermixed, nor for the vegetables or grains that are cultivated under them. On this account the proprietors seem to be very careless in planting new trees, in room of those that have died, or that are in a state of decay; for the older and thinner the palm trees are, the less they injure the crops under them. The *Amildars*, it is alleged, expect presents of the fruit, *Jagory*, and other articles that are cultivated in these gardens, and that do not pay rent.

Palmira, or *Borassus flabelliformis*.

In this vicinity the *Palmira* tree thrives remarkably well, and is planted in barren dry spots, where the other palms will not succeed. It is only used for *Túri*, or wine, and that is never distilled, and seldom made into *Jagory*. Its stem is considered as much better for building than that of the coco-nut.

Sugar.

At *Chinapatam* a family of *Linga Banijigaru* have the art of making very fine white sugar. The process has always been kept a profound secret by the head of the house, who instructs his successor a short time only before his death. The sugar is made for the sole use of the court, who allow the maker 27 *Fanams* a *Maund*, or

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4l. 3s. 7d. a hundred weight, and furnish him with the juice of the cane, which he boils down, at the furnace of the cultivators, to $\frac{3}{7}$ths of the original bulk, and then carries it home to complete the operation. This family is also allowed a village rent-free, as being sugar-makers to the court. Such a miserable monopoly of good things is a favourite practice in the arbitrary governments of *Hindustan.* Instead of wishing to procure articles of the best quality by giving a high price for what they want, the princes of *India* are contented with preventing their subjects, by a monopoly, from getting such good things as they can; not reflecting that a prince, by his superiour wealth, can always in the fair market procure better things than his subjects. I examined the head of this family of sugar-boilers; but what he said concerning the manner of conducting the operation was evidently false; and I did not think it fair to press him too closely, as a discovery of the art might injure his property.

Sugar-cane.

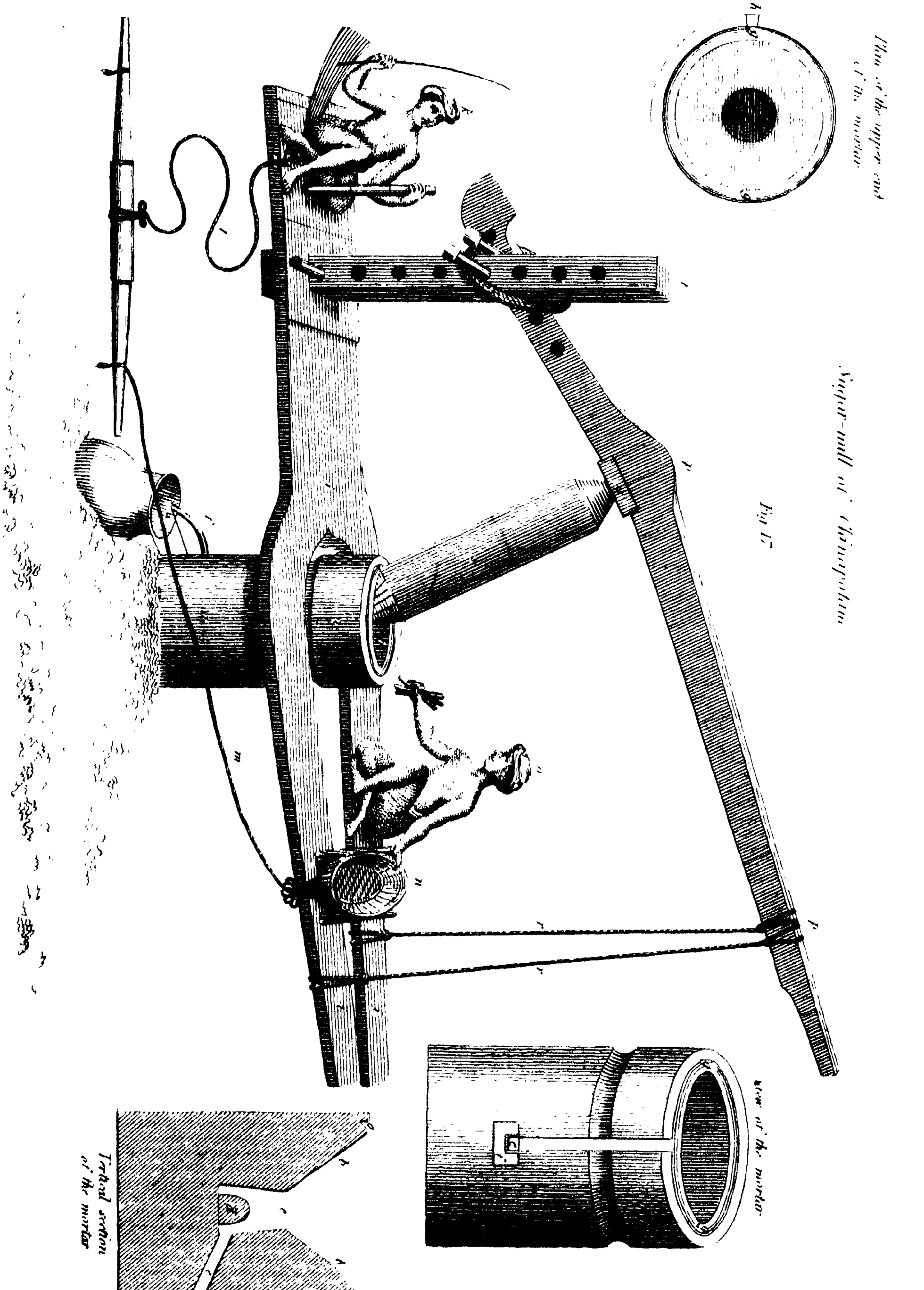
Both *Putta Putti* and *Restali* canes are cultivated, and of both the white sugar can be made; but cane that is raised on a rich soil will not answer for this purpose, as its juice can never be made to granulate.

Taking with me some sensible cultivators, and a *Parputty,* I shewed them a small plot of cane, and asked how much *Jagory* it would produce: they said, 400 balls at $1\frac{3}{4}$ *Seer* each. By measuring the field, and reducing the measures and weights to the English standard, I found this to give $13\frac{1}{4}$ hundred weight an acre.

In the black soil called *Eray* the crop-season commences at *Sivarátri* feast, or on the 12th of February. In the sandy soil called *Marulu* it begins a few days earlier. By this time all the implements are brought to the works, and the iron boiler is hired from the government at the rate of one *Fanam* (about 8*d.*), and one ball of *Jagory,* a day.

Boiling-house.

The boiling-house is a thatched hut, about forty feet long and twenty broad, with a door in front, but without windows. The walls


Plan of the upper end of the mortar
Sugar-mill at Chinapatam
Fig 17
view of the mortar
Vertical section of the mortar

are mud, and stand all the year; but a new roof of very slight materials is put on annually, when the crop is ripe; at one end is a square pit for holding the cuttings of the sugar-cane, (see Fig. 15 and 16, a), and at the other is the boiler (b). The furnace (c) is partly raised, and partly sunk; it is in the form of a truncated cone, and the fewel is supplied from without by an opening in the wall (d). The small hole (e) for letting out the smoke is most injudiciously placed before the boiler, and has no chimney. The iron boiler (b b b) is flat, and completely shuts the mouth of the furnace. Before the boiler is a cavity (f) for containing the large cooling jar. At one of its sides is a seat of mud (g) for the workman who superintends the boiling; and at one end of this is kept a small ark, (h) dedicated to the gods. Here is daily put a proportion of *Jagory*, and a bit of money, which are given to any *Bráhman* that may come to bless the operation by his presence; but, if none come, the money is sent to the *Bráhmans* of the town, and the workmen eat the *Jagory*, after having presented it to the gods, and uttered their names.

The sugar mill (see Fig. 17) consists of a mortar, beam, lever, pestle, and regulator. Sugar mill.

The mortar (a a) is a tree, about ten feet in length, and fourteen inches in diameter. It is sunk perpendicularly into the earth, leaving one end two feet above the surface. The hollow (b b) is conical, truncated downwards, and then becomes cylindrical (c), with a hemispherical projection (d) in its bottom, in order to allow the juice to run freely to the small opening (e), that conveys it to a spout (f), from which it falls into an earthen pot. Round the upper mouth of the cone is a circular cavity (g g), which collects any of the juice that may run over from the upper ends of the pieces of cane; and from thence a canal (h h) conveys this juice down the outside of the mortar to the spout (f).

The beam (i i i) is about sixteen feet in length, and six inches in thickness, and is cut out from a large tree that is divided by a fork

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into two arms. In the fork an excavation is made for the mortar, round which the beam turns horizontally. The surface of this excavation is secured by a semicircle of strong wood. The end towards the forks is quite open, for changing the beam without trouble. On the undivided end of the beam sits the bullock-driver (k), whose cattle are yoked by a rope (l), which comes from the end of the beam; and they are prevented from dragging out of the circle by another rope (m), which passes from the yoke to the forked end of the beam. On the arms a basket (n) is placed to hold the cuttings of cane; and between this and the mortar sits the man (o) who feeds the mill. Just as the pestle comes round, he places the pieces of cane sloping down the cavity of the mortar; and, after the pestle has passed, he removes those which have been squeezed.

The lever (p p) is a piece of timber nearly of the same length with the beam. Its thicker and lower end is connected with the undivided end of the beam by the regulator. Some way above its junction with the regulator, a piece of *Sujalu*, which is a very hard wood, is dovetailed into the lower side of the lever; and in this piece (q) is made a smooth conical hollow, which rests on the head of the pestle. The upper end of the lever is fastened to the two arms of the beam by two ropes (r r).

The pestle (s) is a strong cylindrical piece of timber, about four feet in length. At each end it is cut to a point, so as at the upper end to form a cone, and at the lower a pyramid of from twelve to fifteen sides, surmounted by a short cylinder. The cavity in the lever being towards one end, makes the position of the pestle always oblique; so that as it passes round it rubs strongly against the sides of the mortar. Its cylindrical point rubs on the top of the hemispherical projection (d) that is in the bottom of the cylindrical cavity of the mortar.

The regulator (t) is a strong square piece of timber, which passes through the undivided end of the beam, and is secured below by part of its circumference being left for checks. It is perforated by

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eight holes, in the lowest of which is placed a pin to prevent the regulator from falling when the strain is removed. A pin in one of the upper holes of the regulator, and another in one of the holes in the thick end of the lever, serve to secure in their place the ropes that bind closely together these two parts of the machine. According as these pins are placed higher or lower, the relative direction of all the moveable parts of the machine is altered, and the balance of the beam is so regulated, that it goes round without any friction, but yet with its fork closely applied to the mortar. The only frictions in this machine, it must be observed, are at the two extremities of the pestle; and that which is at the lower end is entirely employed in bruising the cane, which is the object in view; still, however, it is a machine badly contrived for the purpose to which it is applied.

Making *Jagory.*

When the works and machinery have been prepared for making *Jagory,* all the proprietors of sugar-cane in the village assemble, and work together a day at each man's field, in rotation, until the whole is finished. A sufficient number of people bring the canes to a man, who cuts them into pieces about six inches long, and puts them in the square cavity (a) in the boiling-house. From thence one man supplies the basket of the person who feeds the mill, and who is the third man employed at the works. The fourth man drives the bullocks; a fifth carries the juice to the boiler; a sixth attends the fire; and a seventh manages the boiler. The mill goes night and day, and gives 56 pots of juice, containing in all about 218 ale gallons. The bullocks are changed, after having expressed three pots, and do no more work that day, having been obliged to go very fast. Two of them are in the yoke at a time.

The cane raised on black mould gives about a fifth part more juice than that produced on sandy soil: but then nine pots of the latter give a hundred balls of *Jagory,* while it requires twelve, or even fourteen, pots of the former to produce the same quantity. The workmen always put into the boiler as much juice as will yield

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a hundred balls of *Jagory*. It is strained into the boiler through a cotton cloth, and there is added to it a proper quantity of lime-water. In a boiler full of rich juice, from cane raised on sandy soil, there is put half a *Seer* of lime-water, or about 34 cubical inches; and poorer juice from the same kind of soil requires double that quantity. The boiler full of juice from black mould requires five or six *Seers*, which is added by degrees. The boiler performs his operations three times in the twenty-four hours. When the juice has been evaporated to a proper consistence, it is put into a large pot, and allowed to cool for three hours. It is then poured into the mould, which consists of a long thick plank, in which a hundred holes are formed, each in the shape of a quadrilateral inverted pyramid. The *Jagory*, or inspissated juice, is allowed to dry in the mould for four hours; when the plank being turned over, the balls, or rather pyramids of *Jagory*, fall down. They are dried by placing them on leaves for a day, and are then fit for sale. These balls weigh $1\frac{3}{4}$ *Seer*, or 10,617 lb.; and, if made from cane raised on black mould, sell for about seven balls for the *Sultany Fanam*, or 8*s*. $0\frac{1}{2}$*d*. the hundred weight. If made from cane raised on sandy soil, six balls cost a *Fanam*, which is at the rate of 11*s*. $9\frac{3}{4}$*d*. a hundred weight. The *Jagory*, it would thus appear, contains both the sugar and molasses, and is similar to what in *Jamaica* comes out of the cooler before it is taken to the curing-house. It is, however, somewhat more inspissated; for which an allowance must be made, if we wish to compare the strength of the sugar-cane juice in the two countries. By the foregoing account it requires about 37 gallons of the best juice to make a hundred weight of *Jagory*.

By the account of a man, who came into my tents from another village, twelve pots of juice from a black mould give 165 *Seers* of *Jagory;* which agrees very well with what was told me in the presence of the *Parputty*.

The government and the farmers share the produce of *Jagory* equally. An acre produces $13,\frac{4}{10}$ hundred weight, at a medium of

10*s.*; the average rent of sugar land is therefore 3*l.* 6*s.* 6*d.* an acre. The farmers allege, that the *Amildars*, in order to favour the court sugar-maker, who generally supplies them also, take all the juice that is produced on sandy soil, and estimating the quantity of *Jagory* which would fall to the farmer's share, repay him with *Jagory* made of cane raised on black mould; but this seems too paltry a kind of imposition to be practised, and shows that they have little real cause of complaint when they mention one so trivial. CHAPTER III. June 11.

12th *June.*—I went to *Ráma-giri.* A part of the way I had travelled before; but, on coming to the *Arkawati* river, I turned to the north, and passed through a valley naturally beautiful, but which appeared dismal on account of its having been in a great measure deserted. Near its head I found a few small villages surrounded by a little cultivation. June 12. Desolation.

Since the accession of *Tippoo*, *Ráma-giri* has been strangely agitated. The town, which was then considerable, he removed from the west side of the river, and placed close under the hill upon which the fort is built. It was then surrounded by a wall, and some other defences of no great importance. The army of Lord Cornwallis summoned the fort; and the garrison, intimidated by the taking of many strong places which they had seen fall, surrendered without any resistance, and for some time our troops kept possession. After the peace *Tippoo* dismantled the fort, and now the *Amildar* has again removed the town to the west side of the river, and placed it lower down than its original situation. During the incursions of Lord Cornwallis the inhabitants were deprived of the means of subsistence, and a large proportion of them perished of hunger. I give this, and other similar accounts of the state of population, from the information of the natives, which I believe is just, and rather partial to the British side, partly from flattery, and partly from their being sensible that they never before were under the protection of a people so humane, just, and powerful. The place is dreadfully infested by tigers, especially the fort, which occupies a *Ráma-giri.* Tigers.

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large rocky hill, capable of a very tedious defence, even without any assistance from art. Several *Bráhmans* reside near the summit, for the place is reputed holy; but it is kept in a very slovenly state. It is plentifully supplied with water from several large cavities, or chasms in the rock, which receive the rain, and by their coolness prevent its sudden evaporation. Such cavities are called by the natives *Donays*, and in all the rocky hills of this great chain of mountains are very common. In the hottest season they never become dry; but they have no springs to give a supply of fresh water, and of course afford but unwholesome drink.

Donays, which supply water.

Granite.

The granite, of which the rock of *Ráma-giri* consists, is very beautiful, and is composed of small grains of black mica, or perhaps micarelle, and of white glassy quartz, in which are immersed large masses of red felspar. It seems to agree exactly with Mr. Kirwan's definition of granitic porphyry. It is a very elegant stone, and might be procured in very large masses.

Cattle.

Cattle seem to be the principal object of the people of *Ráma-giri.* On account of the great quantity of prickly bushes, and a number of what they call wild dogs, no sheep can be kept; but there are considerable numbers of goats and cows. The inhabitants seem to be uncommonly cleanly; as they gave me some butter that was free from any bad smell or taste, a circumstance that I never before met with in *India*, except where the butter was purposely made for the use of an European.

Goats.

Very few wethered goats are kept here, most of the males being sacrificed when young. Three males are reckoned sufficient for a hundred females. The females begin to breed when a year old, and twice annually have a kid. They give milk eight months in the year; that is to say, four months after each kid, and yield daily half a *Seer*, or about an ale pint. They are killed when eight years old. A young goat, male or female, sells for five or six *Fanams*, or for 3*s*. $4\frac{1}{4}$*d.* or 4*s*. $0\frac{1}{4}$*d.* The tigers are very destructive to this kind of cattle.

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Ox kind.

The farmers who are in easy circumstances keep from ten to thirty breeding cows; but the number of cattle has been exceedingly reduced by a most fatal disorder that prevailed among them last year. It is attributed by the natives to a contagion introduced by the *Brinjaries*, who followed the British army; and no doubt it raged with the utmost violence in the camps before *Seringapatam;* but a similar disease frequently occurs at the same season, although it was never before known to prove so fatal. I am therefore inclined to believe, that it is rather endemic than contagious. It commenced in April, and lasted three months. The cattle seized by this disease pass bloody, or at least very red, urine, and are reduced by a purging; but, although very few recover, the disease does not kill suddenly; they live under it from two to three months. It is alleged, that last year nine tenths of the whole cattle in this district perished from this cause.

The cows are always kept in a house at night, and by some are littered with straw; but by others this is neglected. At night they always get straw to eat. In the morning, about an hour after sunrise, all, except the working oxen, are turned out to the woods under the charge of a man, who takes care of fifty head. They are much exposed to tigers, and are not guarded by dogs. At noon they have water, and again in the evening, when they are brought home. The milch cows on this occasion have for their drink the water in which the grain of the family has been boiled.

The cow begins to breed at about three years of age, but at no particular season of the year. She goes nine months with calf, and does not breed oftener than once in two or three years. She continues to give milk, until within three months of calving. For the first month the calf has all the milk; afterwards it continues to have a little every day, till the mother becomes dry. A middling good cow gives, twice a day, three quarters of a *Seer* of milk, or about a pint and a half, besides what the calf draws. A cow lives until she is twenty years of age, but does not breed after sixteen. The idea

CHAPTER III. June 12. of putting a cow to labour shocks the natives here exceedingly. They cannot hear it mentioned with patience; and relate, with marks of great satisfaction, that for this offence their last *Raja* put to death several *Brinjaries;* for it is customary with that people to make cows carry their baggage.

The working oxen begin to plough at sun-rise, and continue until sun-set, with an intermission of three hours at noon; at which time they have a feed of straw, as they have also at night. They have water at noon, at three o'clock, and at sun-set. The cattle bred here are not fit for the road. The richest man of the village keeps a bull or two, as there may be occasion, and these serve all the cows without hire. The best calves are kept for this purpose; and occasionally a good bull is purchased from some distance, to improve the breed. The bull begins to propagate at three years of age, and continues till ten. Those intended for labour are emasculated at three years of age, by bruising the parts between two sticks. They very seldom die in consequence of this operation; but for about fifteen days are in pain from the swelling, and for a month do not begin to work. In the *Decan*, castration is not practised on any quadruped. The young bulls are frequently wrought, and the ox continues to labour until he is ten or twelve years of age; when, worn out by hunger, fatigue, and bad usage, he dies a premature death, and his carrion is devoured by the *Whalliaru*. The late emasculation of the cattle intended for labour is done with a view of giving the ox spirit; but I am inclined to think that it produces a great degeneracy in the breed; for the cows, in consequence, are frequently impregnated by the poorest creatures of the herd.

In all diseases of the ox kind, the grand remedy is the actual cautery, applied very fancifully in different places, and to a different extent, according to the supposed nature of the disease. The animal is thrown down, his mouth and legs are tied, and long lines are burned with a hot iron, so as to bring off both hair and skin. Three lines are often thus drawn, on each side, the whole length of the

animal's body. Although the killing an animal of this kind is by all *Hindus* considered as a kind of murder, I know no creature, whose sufferings equal those of the labouring cattle of *Hindustan*.

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Before the fatal disease of last year, the usual price of a middling ox five years old, was from 25 to 30 *Fanams*, or from 16*s*. 9½*d*. to 1*l*. 0*s*. 1¼*d*.; and of a cow, from 20 to 25 *Fanams*, or from 13*s*. 5*d*. to 16*s*. 9½*d*. The price of an ox is now 40 *Fanams*, or 1*l*. 6*s*. 10*d*.; and of a cow, 30 *Fanams*, or 1*l*. 0*s*. 1¼*d*.

Cad' Eriligaru, or *Cat' Chensu*.

In this hilly tract, there is a race of men called by the other natives *Ċad' Eriligaru;* but who call themselves *Cat' Chensu*. Here they live in little huts near the villages, and have a small piece of blanket, or cotton cloth, to cover their nakedness. They are reconciled to the other natives, and pay a trifling capitation tax to government. Where the woods are more extensive, they are terrified at the sight of any civilized being, and live absolutely without any clothing, but cover their nakedness with a few leaves. In these forests they dwell in caves, or under bushes, which they make a better shelter from the weather, by adding small branches from other trees. When the civilized part of this tribe go into the woods to visit their relations, or to trade with them, they must throw off their rags, lest they should be mistaken for a villager, in which case none of the *Chensu* would approach.

The language of the *Chensu* is a dialect of the *Tamul*, with occasionally a few *Karnata* or *Telinga* words intermixed; but their accent is so different from that of *Madras*, that my servants did not at first understand what they said. Their original country, they say, is the *Animalya* forest below the *Ghats*, which is confirmed by their dialect. Those who live in the villages have taken the *Pancham Banijigaru* as their chiefs; they trade chiefly with them, and call them their *Swámis*, or lords; but, although they have learned to invoke the name of *Siva*, they do not wear the *Lingam*. Those in the woods have either no religion, or some simple one with which those here are unacquainted. The people of this country attribute

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to the *Chensu* the power of bewitching tigers; and my *Bráhman* gravely informed me, that the *Chensu* women, when they went out to procure food, left their infants in charge of one of these ferocious beasts. The *Chensu* of course deny their possessing any such power; but allege, that the art is known to another rude tribe named *Soligaru*, who inhabit the southern *Ghats* which separate this country from *Coimbetore*.

The *Chensu* here live upon game, wild roots, herbs, and fruits; and a little grain, which they purchase from the farmers. They are enabled to do this by collecting some drugs, honey, and wax. It is on account of their having the exclusive privilege of collecting these two last articles, that they pay a poll-tax, which is annually fifteen *Fanams*, or 10*s.* 0¼*d.* for each family.

Bees.

The bees are of two kinds: one, smaller than our bee, builds its nest on the twigs of trees, and is easily procured; the other is a large bee, which builds in the clefts of rocks, and its honey is obtained with great difficulty. The wax sells at 2½ *Seers* for the *Fanam*, or 1*l.* 8*s.* 4*d.* a hundred weight. The honey sells at 2 *Seers* for the *Fanam*.

Drugs.

The drugs collected by the *Chensu* are as follow: *Agulusunti*, and *Hegguntigay*, two roots used in medicine. *Popli*, a bark used as a red dye. The plant that produces it is a scandent shrub, the flower or fruit of which I could never find; nor did Dr. Roxburgh know it by the dry specimen of the branches in leaf. It seems, however, to be nearly related to the *Ventilago*. The *Muddi*, or bark of the root of at least two kinds of *Morinda*, is also used as a dye; as is likewise the *Capily Podi*. It is the red dust shaken from the fruit of the *Rotleria tinctoria*. The merchants of *Bangaluru* and *Colar* buy up these articles, paying to the *Chensu* a *Fanam* for 32 *Seers* of *Popli*, and *Muddi*, or 3*s.* 10½*d.* a hundred weight, and a *Fanam* for one *Seer* of *Capily Podi*, or 1*s.* 1¼*d.* a pound.

When ordered, the *Chensu* collect gum from various trees; but they never do it without a special commission, and the quantity

that they could procure is inconsiderable. The trees which produce it are,

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Dinduga,	- -	*Andersonia Panshmoum,* Rox. MSS.
Bewu,	- - -	*Melia azadirachta.*
Muruculu,	- -	*Chirongia glabra,* Buch. MSS.
Mavena,	- -	*Mangifera Indica.*
Avaricay,	- -	*Cassia auriculata.*
Nugay.		
Bayla,	- - -	*Ægle marmelos.*
Jala,	- - -	*Shorea Jala,* Buch. MSS.
Chadacalu,	- -	*Chloroxylon Dupada,* Buch. MSS.
Betta Tovary,	- -	*Bombax gossypinum,* Lin.

The principal articles of vegetable food collected by the *Chensu,* are, the seed of the *Bamboo,* and several kinds of *Dioscorea,* or *Yams,* that grow wild in the neighbouring woods.

The kinds of game which they kill are as follow:

Wudamu, or *Jevaji*	-	*Lepus Hurgosa,* Buch. MSS.
Bandicoote	- -	*Mus Malabaricus,* Shaw.
Cad' Hundi	- -	*Sus Scrofa ferus.*
Hulay	- - -	*Antilope Gazella.*
Saraga, or *Manu*	-	*Cervus axis.*
Cadaba	- - -	*Cervus Cadaba,* Buch. MSS.
Condagurovi	- -	*Cervus Muntjac.*
Cadu Cauli	- -	*Phasianus Gallus.*
Navelu	- -	*Pavo.*
Paruala	- -	*Columba.*
Lavagay.		
Chipula Haki.		
Cad' Haki.		
Swaray Haki.		

Haki signifies a bird. My time would not permit me to enter into a particular investigation of these species. The beasts are killed with a match-lock, which the farmers give to the *Chensu,* with

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powder and ball, on condition of receiving a part of the game. The birds are killed with the pellet-bow, or caught by hair springes. The *Chensu* possess no domestic animals.

Lac.

Lac is produced in several of the neighbouring hills, upon the tree called *Jala*, which seems to be of the same genus with the *Shorea* of Gærtner, and this is probably not different from the *Vatica* of Linnæus. The tree is never planted, but grows naturally; and the persons who rent the *Lac* carry the insect from one tree to another. The tree grows to a large size; and there are a great many, on which no insects have been put. The *Chensu* and *Woddar* are the persons who commonly rent it; but they allege, that they are discouraged from the employment, by the want of leases for a number of years. *Stick-lac* sells here at three *Fanams* for the *Maund* of 40 *Seers*, or 9*s.* 4½*d.* a hundred weight.

June 13. Face of the country.

13th *June.*—I went to *Magadi*, which in our maps is called *Maghery*. This stage was very fatiguing for my cattle; and the road passed through a wild but romantic country, which consists of low hills, intermixed with little cultivated vallies. The soil of these is tolerably good; and, like the *Ráma-giri* valley, they are cultivated with dry grains only. The higher parts are covered with trees, which, owing to the poverty of the soil, are in most places very small; but near *Savana-durga*, and in a few other parts, the timber and *Bamboos* grow to a good size. The summits of all the ridges of hills are bare rocks of the granitic porphyry, and often rise into high sharp peaks, or immense masses of naked stone. By far the most remarkable of these is occupied by *Savana-durga*, which the army of Lord Cornwallis took by assault; ever since which time it has been deserted.

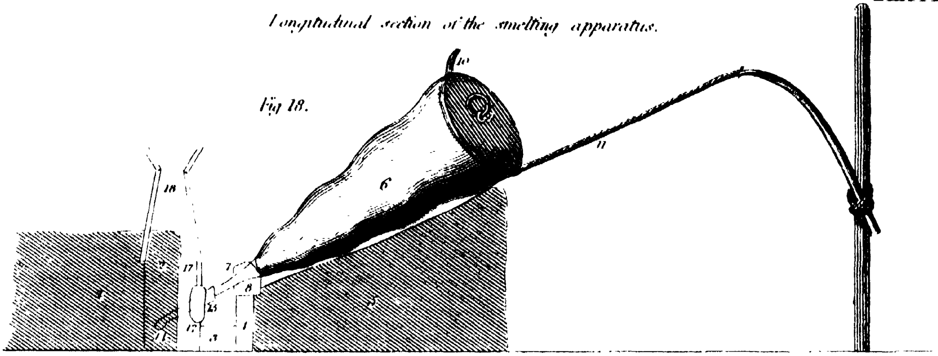
Iron mines.

On my way I examined some iron forges, of which there are many in this hilly tract of country; and from a man, who employs twelve labourers, I procured the following account of the operations performed on the ore. The iron is made partly from the black sand which is found in the rainy season in the channels of all

PLATE VIII.

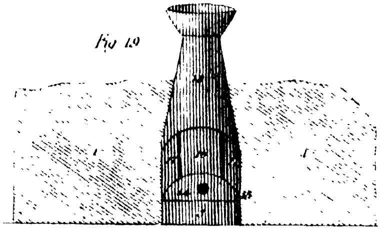
Longitudinal section of the smelting apparatus.

Fig 18.



Front view of the smelting furnace.

Fig 19.



Longitudinal section of the forging furnace.

Fig. 22.

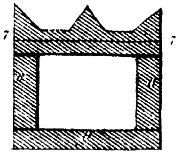
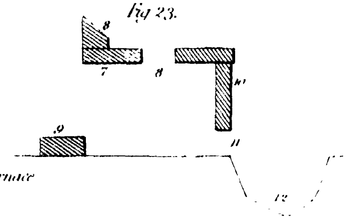
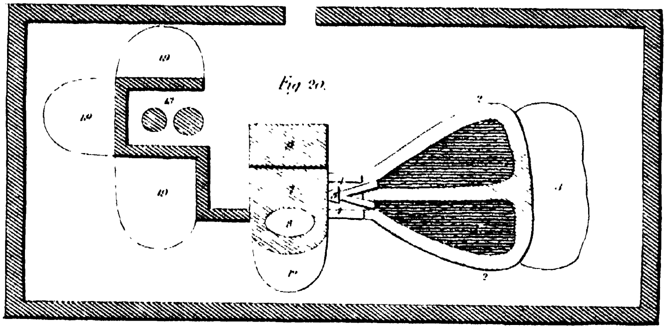


Fig 23.



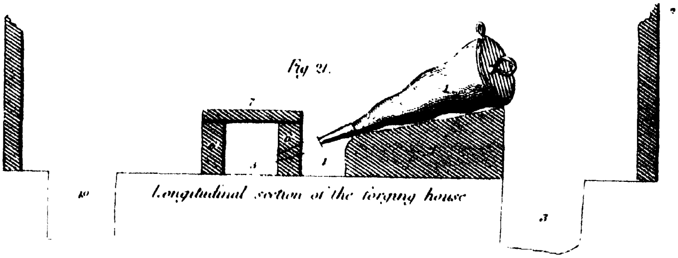
Front view of the forging furnace

Fig 20.



Ground plan of the forging house

Fig 21.



Longitudinal section of the forging house

the torrents in the country; and partly from an ore which is found at *Ghettipura*, two cosses from *Magadi*. During the four months of heavy rains, four men are able to collect as much sand as a furnace can smelt in the remainder of the year. In order to separate the earth and sand, which are always mixed with it in the channel of the torrent, it requires to be washed. These men get ten *Fanams*, or *6s.* 8½*d.* a month, and the nature of their service is similar to that of the farmers servants, being bound by occasional advances of money to continue in the employment of the master. During the remaining eight months of the year they work at the forge.

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Iron smelting furnace.

The smelting furnace is made in the front of a square mound of clay, sloping up gradually from behind forwards. In order to assist the imagination, I give rude sketches (Fig. 18 and 19) of the longitudinal and transverse sections. In the front, the mound (1) is twenty-two inches high, and three feet broad. In this, from top to bottom, is made a semicylindrical cavity (2), about a foot in diameter. On the ground, in front of the cavity, is laid a stone (3) six inches high, a foot long, and a foot broad. Contiguous to this is placed another stone (4) a foot square, and two inches thick. On the top of this is fixed a small piece of timber (8), behind which rises another mound of clay (5), sloping upwards gradually, and widening as it recedes from the furnace. On this rest the bellows, of which there are two. Each consists of a whole buffalo's hide, removed without cutting it lengthwise. Where it has been cut at the neck, it is sown up, so as to leave a small opening for a wooden muzzle (7), which is made fast to the piece of timber (8) beforementioned. The hinder part of the skin is slit vertically, and the one side is made to lie over the other. In the middle of this outer side is fastened a ring of leather (9), through which the workman passes his arm, and seizes the upper angle of the skin (10), which serves as a handle. When he draws back his arm, the opening in the hinder part of the skin is dilated, and admits the air; when he forces his arm forward, the opening is closed up, and the air is

CHAPTER III. June 13. forced through the muzzle. The lower part of the bellows is retained in its place by a rope fastened to the lower angle (11), and supported by an elastic piece of timber (13), which is fastened to one of the posts of the hut, like a turner's lathe. The muzzles of both the bellows are inserted in one common tube (14), which is made of baked clay, and is placed in a sloping direction, so as to pass through a mass of moist clay (15), that occupies the front of the furnace above the first mentioned stone (3). Above this is placed a large tile (16); and the empty spaces between this and the mound (1) are filled up with moist clay (17). The furnace is now cylindrical, and open at top, on which is placed a chimney (18) made of baked clay, in the form of two truncated cones joined together by the *apices*. Of these the upper cone is by far the shortest. From this it must be observed, that the whole lower front of the furnace is moveable; and when it has been newly built up, a little charcoal is burned in it for an hour, to dry the moist clay by which the various parts are connected. The rents formed during this operation must be carefully closed with more clay, and the furnace is then ready for immediate use.

For smelting the black sand, the following is the process. A quantity of the sand is measured out, and divided into three parts, each of which I found to weigh a little more than 25 pounds 11 ounces avoirdupois. Three baskets of charcoal are then set aside, of which each contains about a bushel. Two of the baskets of charcoal are then put in by the top of the chimney, and above these one third part of the sand. The fire is then kindled, and urged with the bellows. When the fire subsides, one half of the remaining charcoal, and another third of the sand, are put in; and, when those have again subsided, the remainder of the sand and charcoal is added, and the fire is urged six hours and a half from the commencement. The front of the furnace is then broken, and on removing the walls a mass of iron is found at the bottom, which is taken out with forceps, and cut into two blocks, weighing each half

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a *Maund*, or a little more than twelve pounds two ounces. By this it would appear, that the ore produces no more than about $31\frac{1}{2}$ per cent.; and the iron so produced, although malleable at first, is extremely impure. *Tippoo* took it from the workmen at 3 *Fanams* a *Maund*, or 9*s*. $3\frac{1}{2}$*d*. a hundred weight. He gave them, however, great employment; as he made his shot of this iron, by hammering; for the fusion is never so complete as to allow it to be ca i moulds.

Iron forge.

In order to render this iron more pure, and to fit it for being wrought up into the implements of husbandry, it is taken to another house, and repeatedly forged. Fig. 20, 21, 22, and 23, are rude sketches of the apparatus necessary for this purpose. There are here also two bellows (1), but they are smaller than those in the smelting-house; and, the mound (2) on which they are supported being low, a pit (3) is formed behind it, in which the labourers stand to reduce them to the proper level. The muzzles of the bellows (4) are inserted into an earthen tube (5), which conveys the air into the furnace through one of its side-walls (6) These walls are two masses of clay, one cubit long, ten inches high, and four inches thick; and are placed on the floor, parallel to each other, at the distance of a foot. On them is laid a flat cover (7) made of baked clay, and about an inch and a half in thickness. In its hinder part is an oblong opening (8), sufficient to admit one of the blocks of iron. The fore part of the furnace is secured on the top by a moulding (23) of clay, which is somewhat ornamented. Before it is placed a stone (21) a cubit long, twelve inches broad, and three high. Except what is shut up by this stone, all the fore part of the furnace is open. The hinder part (10) is entirely shut up with clay, except a small opening (11), by which the ashes and vitrified scoriæ fall into the ash-pit (12).

A block of iron from the smelting-house having been put into the centre of the furnace, it is filled with *Bamboo* charcoal, and strongly heated; while another block is put into the upper opening

CHAPTER III. June 13. (8), to receive some heat as a preparation. When the first block is properly heated, it is placed on an anvil (13), and receives a few strokes of a large hammer from three workmen, who stand in three cavities (19) formed round the anvil, to reduce them to a proper level, and who thus knock off some ill smelted portions, and much of the adhering scoriæ. With a kind of hatchet the block is then cut into three wedges; and in this operation the workmen show much dexterity. The second piece is then put into the center of the furnace, and a third piece is placed in the upper opening of the furnace (8); while these are heating, the three wedges are again made red hot, and well beaten on the anvil (13) by the three workmen with large hammers. In this state the six wedges produced from one smelting weigh 24 *Seers*, or a little more than 14½ pounds avoirdupois; and are sold to the blacksmiths; who are, however, obliged to heat and beat the iron three or four times, before it is fit for making the implements of husbandry. The weight of the six wedges is then reduced to fifteen *Seers*, or a little more than nine pounds; and they sell at from two to three *Fanams*, or from about 1*s.* 4*d.* to 2*s.*: that is, from about 16*s.* 6*d.* to 24*s.* 9*d.* a hundred weight. From this it appears, that the good malleable iron, produced by this means, is not quite 12 per cent. of the weight of the ore.

Steel. The same persons also make steel. Good clay is mixed with an equal quantity of the charcoal that is made from *Paddy* husks; and, having been well moistened with water, is thoroughly mixed, by being trodden under the feet of oxen. It is then picked clean, and made into cuppels, which are dried one day in the shade, and next day in the sun. A fire place is then made, in form of a parallelogram, by placing two stones one cubit long, and two inches and a half high, parallel to each other. At the distance of a foot above the stones is placed a wall of clay eight inches high. One end is shut up, in the same manner, by stone and clay; the other is built up with clay alone to the height of two cubits.

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Through this is inserted a tube for two bellows. Each of the cuppels is now loaded with a small piece of iron, from one to one and a half *Seer* (9 $\frac{7}{10}$ oz. to 14 oz.) in weight, together with five small pieces of the *Tangayree* wood *(Cassia auriculata)*. Three rows of the loaded cuppels are placed one above the other, so as to occupy the whole area of the furnace; the room of one cuppel only being left empty, opposite to the muzzle of the bellows, in order to give access to the wind. They are covered with two bushels of charcoal, and burned for six hours; a third bushel of charcoal having been added, as the former two were consumed. The pieces are then taken out, and hammered into small square bars, having been heated with charcoal of the *Sujalu (Mimosa Tuggula*, Buch. MSS.)

Expence and profits of the iron forges.

The expence that attends the working of one of these iron forges is as follows:

	Fanams.
To 4 men for collecting iron sand, at 10 *Fanams* each for 4 months - - - - - - - - - - -	160
To 6 men to make charcoal, 4 for the smelting-house, and 2 for the forge, during 8 months, at 8 *Fanams* monthly for each - - - - - - - - - - -	384
To 4 labourers at the smelting-house, for 8 months, at 10 *Fanams* each - - - - - - - -	320
To 6 labourers in the forging-house, of whom 1 has 12 *Fanams*, the others 6 *Fanams* a month, for 8 months - -	336
To the government paid yearly; for making charcoal 60 *Fanams*, for ground rent for furnace 20 *Fanams*, for ditto for servants houses 20 *Fanams* - - - - - -	100
Fanams	1300

The smelting-house burns thrice a day, for about eight months of 32 days each, without any allowance for holidays, and at each time produces as much iron as, when forged, sells for from two to three *Fanams*.

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	Fanams.
At two *Fanams* the returns are - - - - - -	1536
Cost - - - - - - - - - - -	1300
Net profit - - - - - - - - - - -	236

	Fanams.
At three *Fanams* gross produce - - - - - -	2304
Cost - - - - - - - - - - -	1300
Net profit - - - - - - - - - - -	1004

Manipulation of the ore.

The operation for smelting the ore is exactly the same as that used for the black sand, except in the cleaning of it. The ore is first reduced to powder with an iron bar, and then the earthy particles are washed away in a wooden trough; when it becomes exactly like the black sand, and is called by the same name, *Aduru*. The collecting of it is attended with less trouble than that employed to collect the black sand; but the carriage to any considerable distance prevents it from being used in general; as the workmen must live where the farmers will give them employment in their vacant time.

Another Statement.

Two other men, one from *Ghettipura*, and one from *Cutlu* on the way to *Bangaluru*, confirm the above account. Each smelting, according to them, takes nearly 68 pounds of black sand. The difference here, from the other account, probably arises from my having weighed the former when very moist, and this when dry: for the workmen always put the sand into the furnace, after having thoroughly soaked it with water. According to this account, however, the ore gives rather more than 37 per cent. of the impure iron, and a little less than 20 per cent. of iron fit for the use of the blacksmith. For this purpose, after it has been split into wedges, it requires to be four times heated and hammered.

According to the account of these people, the following are the expences of a smelting-house and forge:

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	Fanams.
To 3 men to collect and prepare ore for 9 months, at 10 *Fanams* - - - - - - - - - - -	270
To 5 persons to make charcoal, at ditto - - - - -	450
To the head workman at the smelting furnace, at 15 *Fanams* a month - - - - - - - - - - -	135
To 3 under workmen at ditto, at 13 *Fanams* each a month -	351
To the head workman at the forge, 20 *Fanams* a month -	180
To 3 hammer-men at ditto, at 9 *Fanams* each - - - -	243
To 2 bellows-men at ditto, at 8 *Fanams* each - - - -	144
Paid to the Government:	
For liberty to make charcoal - - - - - - -	200
For ground-rent of furnace - - - - - - -	10
Ditto for workmen's huts - - - - - - -	54
Total of expences - - - - - - -	2037

Produce of three smeltings daily for 9 months, of 32 days:

	Fanams.
Gross produce, at 2 *Fanams* each smelting - - -	1728
Loss - - - - - - - - - - - -	309
Gross produce, at 3 *Fanams* each smelting - - - -	2592
Total expence - - - - - - - - -	2037
Profit - -	565

In this account the expences greatly exceed those stated by the first man, and seem to me to be much exaggerated. The persons who gave it allege, that the *Ghettipura* ore has not been lately wrought.

June 14.

14th *June*.—I remained at *Magadi* to procure specimens of the timber contained in the forests, which was attended with more difficulty than could have been supposed. About forty men, employed all day, brought only ten specimens; and of these several were useless, from being spoiled at the heart.

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June 15. *Savana-durga.*

15th *June.*—Having had little success yesterday in sending the woodmen to bring me specimens of timber, I went to-day into the woods on the east side of *Savana-durga*, which name has been corrupted by us into *Severndroog*. It is an immense bare rock, which has many fortifications on its summit. A lower rock, but yet one of great strength, is fortified, and is situated at the base of the larger, towards the small river, which runs in a very deep ravine; and a large space between the ravine and rock is also enclosed by a stone wall, and surrounded by thick forests. This place formerly contained several temples, and some large gardens belonging to *Magadi Kempa Gauda;* and served as a place of refuge for the inhabitants of all the neighbouring country, who in case of invasion retired hither with their grain and cattle. A few families of *Bráhmans* remain near the ruinous temples; and the site of the gardens is evident from a number of fruit and flowering trees. Every other part of the enclosure is overgrown with forest trees and *Bamboos.*

Magadi Kempa Gauda.

Magadi Kempa Gauda, or the red head-man of *Magadi*, was a wealthy farmer, who, having gathered together a number of followers, built at his native village two large temples, and the fortress of *Savana-durga*, and became a *Polygar* of great distinction; as he possessed also *Ráma-giri*, and a great extent of the neighbouring hilly tract. About five years ago, *Tippoo*, with his usual policy of removing every monument of *Hindu* government, destroyed *Magadi*, and forced the inhabitants to settle in a new town, which he erected in the woods, and called *Ali-nagar.* The people are now deserting this place, and returning to their old abode in *Magadi.*

Forests.

In the hollow ground near the river are some of the best forests in the country, the trees growing to a considerable size. The cattle of the inhabitants never go into them; nor can any one cut the timber without an order from government. Much of the lower land in this forest might be cleared and cultivated.

Throughout these hills, which extend northward from *Capala-*

durga, are many cultivated spots, in which, during *Tippoo's* government, were settled many *Baydaru*, or hunters, who received twelve *Pagodas* (4*l.* 5*s.*) a year, and served as irregular troops whenever required. Being accustomed to pursue tigers and deer in the woods, they were excellent marksmen with their match-locks, and indefatigable in following their prey; which, in the time of war, was the life and property of every helpless creature that came in their way. During the wars of *Hyder* and his son, these men were chief instruments in the terrible depredations committed in the lower *Carnatic*. They were also frequently employed with success against the *Polygars*, whose followers were men of a similar description. At present, as they receive no pay, they are obliged to apply more closely to agriculture; for in that way they always employed their leisure; and there is a prospect of their becoming a quiet and industrious people, although they still retain their arms, and an anxious desire for plunder.

CHAPTER III. June 15. *Baydaru.*

16th *June.*—I remained at *Magadi*, endeavouring to complete my collection of the various timber trees. I sent also to *Ghettipura* to inquire after the iron mines: but was informed by the officers of government, that, nobody having wrought them for some years, their situation was not now known. After a long search, however, they had found a few stones, which they sent, believing that they might be iron-ore. I then sent for the man who had given me the information; and on the following day,

June 16. Iron mines at *Ghettipura.*

17th *June*,—I took him along with me to *Ghettipura*, where I not only found the ore in several places, but also the pits, from which the people were then actually taking it to supply their furnaces. I am at some loss to account for this desire of concealment relative to minerals, which also extends to every kind of quarry throughout the country, and which equally pervades the officers of government and the other inhabitants. Men, who have given me apparently correct information relative to their farms, have eagerly denied a knowledge of the fossile kingdom, which they no doubt possessed,

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and for which denial I can assign no plausible motive. The late Sultan, indeed, is said to have harassed his subjects exceedingly, by making them work at quarries, and also to have been very severe on the smelters of iron; and the people may have suspected, that my inquiries might lead to similar oppressions; but according to the iron-smelters' own account, the Sultan gave them a high price for their iron, and by his great demand afforded them constant employment. It is probable, however, that he compelled them to work much harder than they were inclined to do, and that they were defrauded by those who were entrusted with the payment.

Much steel was formerly made at *Ghettipura*, from whence it derives its name, which signifies literally *hard town*. It is a small village situated by the compass W. S. W. from *Savana-durga*, and is distant from *Magadi* about seven miles. Near it are many cultivated fields intermixed with low rocky hills. The ore is found both in the fields and hills.

The iron ore of the fields consists of small irregular masses separated by thin layers of earthy matter, and is found in beds that are from five to ten feet deep, which have only been wrought in a few places, where they come so near the surface that they have been discovered by the plough. It is probable, that by digging deep they might be found to be of great extent. The small masses are easily beaten into powder, and then the black sand is readily separated, by washing, from the clay and sand that are the other ingredients in their composition. This ore is of two kinds; one efflorescing into red ochre, the other into yellow. Intermixed with both these kinds of ore, which are called female stones, are many lumps of what the natives call male stone. It appears to me to be composed of the same materials with the female stone, but is so hard, that the imperfect manipulations of the natives cannot reduce it to a powder, and of course they cannot separate the earthy matter. It is, therefore, looked upon as useless, fluxes being totally unknown to the miners of *Mysore*. The female stone appears to me to be the male in a state of decay.

The iron ore of the hills is also male and female; the latter being the only one used; and this is also, in my opinion, the male in a state of dissolution. The male stone in the hills bears a much larger proportion to the female, than it does in the fields. This ore also is found on digging a very little depth into the soil, and seems to be the source from whence most of the black sand of the country is washed by the rain. It appears to me to differ from the quartz impregnated with iron, which I mentioned in the account of the *Pedda Náyakana durga Ghats*, only by containing a larger quantity of metal. The female stone is very easily reduced to a powder; and the iron sand is readily separated, by washing, from the quartzose sand, which is the other ingredient in the ore. It is not so rich in metal as the ore found in the fields. These two ores are called *Aduru Cullu*, or stones containing iron sand.

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On the surface of the hills is found another iron ore called *Ipanada*, which is scattered among the gravel in small lumps, from the size of an egg downwards. They are a pure ore, and are put in the furnace without any preparation, except breaking the larger pieces into bits about the size of a filbert. The quantity of *Ipanada* required for one furnace is exactly the same, by measure, as that of *Aduru;* but the weight of *Ipanada* is of course less, there being more space occupied by interstices, from the greater size of the pieces. The produce of iron from both is the same. The surface of the lumps of *Ipanada* is often covered with a kind of black enamel.

June 18.

Trees found in the central wood of *Karnáta.*

18th *June.*—I passed this day in the woods near *Savana-durga,* investigating their productions. The woodmen are a poor ignorant race, most of them of the lowest cast called *Whalliaru;* but they always pretend to know every plant of which the name is asked. They have also a number of specific appellations, such as *Bily*, white; *Kempu*, red; *Cari*, black; *Doda*, large; *Chica*, small; *Betta*, mountain; *Wullay*, cultivated; *Cadu*, wild; *Timbo*, eatable; and the like; many of which they often apply to the same species, and sometimes the

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same name to different species, with so little accuracy, that any person, who depends on their accounts will find himself thrown into great confusion.

June 19. Quarries.

19th *June.*—I was obliged to remain at *Magadi* still another day, to complete my collection of forest trees, and to procure specimens of the stones from the best quarries.

The stones that are employed in building the temples at *Magadi* are,

1st. The granitic porphyry, or the granite which contains large masses of red felspar in a small grained mixture of grey quartz and black mica, and which I described at *Ráma-giri.* Near *Savana-durga* there is an excellent quarry of this stone.

2d. A granite consisting chiefly of black mica and red felspar. This may be procured of a very large size.

3d. The common grey granite of the country. I met also with the two following stones:

1st. A granite with large grains black and white. This may be procured of great size.

2d. A most ornamental aggregated rock. The basis is green, of what nature I am uncertain; perhaps it may be a hornstone. It contains veins of white quartz, and concretions of red felspar. The whole takes an elegant polish, and may, in Mr. Kirwan's acceptation of the word, be considered as a porphyry. Near the surface the rock is full of rents; but by digging deep, it is said, large masses may be procured. It seems to differ from the fine green stone which was found in the palace at *Seringapatam,* only by containing felspar.

Forests.

The trees that compose the forests among these hills are chiefly the following:

Henna Gorivi, Ixora arborea, Roxb. MSS.

A small tree used for beams and posts in the houses of the poorer natives. People travelling at night use pieces of it for torches, as it burns readily and clearly.

Ghendu Gorivi, or *Haydarany*.
Serves for the same purposes as the preceding, and is probably a species of the same genus.

Cari Hulivay? Clutia forte stipularis? I believe the natives misapplied this name. They had often mentioned it to me, and had brought a specimen of the timber; but in the woods they sometimes called one tree by this name, and sometimes another. At last they fixed positively on this, which is said to produce good timber.

Heb, or *Bily Hulivay*, *Chuncoa Huliva*, Buch. MSS.

A large tree, and good timber.

Tor Mutti, *Chuncoa Muttea*, Buch. MSS.
At *Chinapatam* this tree is called *Cari Hulivay*. To the northward it is commonly called *Muddi*, which is a *Telinga* name. It is a very large tree, and its timber is very useful.

Tari, *Myrobalanus Taria*, Buch. MSS.
Is a large tree much used by the natives. Its timber becomes tolerably durable, if, after being cut, it be kept some months under water. The kernel of the fruit is esculent.

Arulay, *Myrobalanus Arula*, Buch. MSS.
The timber of this tree, like that of the former, requires to be watered in order to render it durable. The fruit is the common tanning and dying *myrobalan* of this country.

Amutty, or *Gowda?*
It grows to be a large tree, and its timber is used for planks, beams, and posts.

Jugalagunti, *Diospyros montana*, Roxb.
The timber of this tree is said to be hard, and durable; but from some prejudice, it is never used by the natives. Its name signifies the *scolding wife*.

Tupru, *Diospyros Tupru*, Buch. MSS.
used for small beams and posts. The timber is said to be very hard and strong.

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Vana Rája, or *Asha, Bauhinia.*
It is called the prince of the forest, on account of the superior excellence of its timber; but it does not grow to a large size.

Hassur Gunny, Dalbergia?
Grows to a middling size, and its timber is good; it nearly resembles the following tree; but may be readily distinguished by the bottom of its leaflets being acute; while in the other they are rounded.

Pachery, Dalbergia paniculata, Rox.
Grows to a large size, but its timber is very useless; for the layers of which it is composed readily separate.

Biridy, Pterocarpus Sissoo, Roxb. MSS.
A middling sized tree of an excellent quality for furniture. By the Mussulmans it is called *Sissoo;* but it does not seem to be exactly the same with the tree of that name which grows in the north of India.

Whonay, Pterocarpus santalinus, L. F.
A large good timber tree, fit for furniture. Its bark contains a blood-coloured juice.

Hoingay, Robinia mitis, Lin.
It grows to be a large tree, and its timber becomes tolerably durable; if, after it has been cut, it be kept some months in water.

Hurugulu, Chloroxylon quod Sweitenia chloroxylon, Roxb.
This never grows to be a large tree, but its timber is beautiful. It is said to be the satin wood of the English cabinet-makers.

Chadacalu, Chloroxylon Dupada, Buch. MSS.
An elegant tree, producing a resin that is frequently used in the temples, as incense.

Swamy, Sweitenia febrifuga, Roxb. MSS.
A strong, but small timber tree, produces a fine clear gum.

Gowda, Sweitenia trilocularis, Roxb. MSS.
A large tree; but its timber is very bad. Another tree, as before mentioned, was by the woodmen called *Gowda;* but that probably is a mistake

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Jani, Grewia.
There are three species called by this name, the *Asiatica,* the *Orientalis,* and that which I have named *Jania.* The timber of none of them is useful.

Bili Tali, Bilitalium farinosum, Buch. MSS.
In the *Telinga* language this tree is called *Tellamaliki.* It grows to a large size, and its timber was said to be good; but I found it to be white, soft, and very perishable.

Betta Tali, or *Betta Tovary, Bombax gossyppinum.*
A large tree. Its timber becomes somewhat durable, if kept in water for some time after being cut; but without this precaution it is little worth.

Nai, or *Cag Nerulu.*
This cannot be of the same genus with the following *Nerulu,* as it has alternate serrated leaves. A large tree, the timber of which is much used.

Rudrashu Nerulu, Calyptranthes Jambulana Willd.
Also much used. This is the tree from whence the *Bráhmans* derive the name of this earth.

Betta Padri, Bignonia chelonoides.
A small tree; but its timber makes strong posts and beams.

Wullay Padri, Bignonia spathacea.
Timber little used.

Navulady, Mail elou, Hort. Mal. V. t. 1.
A large tree, and durable timber, which takes a polish, and is used for furniture, planks, beams, and posts.

Shivuli,
A small but good timber tree.

Topala, Mimosa leucophlea, Roxb.
The bark, when newly cut, has a strong disagreeable smell, like that of the *Mimosa Indica,* E. M. It grows to be a large tree, and produces strong timber for posts and beams. The bark is used by the natives in distilling spirit from *Jagory.*

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Cagali, Mimosa catechu, Roxb. Pl. Cor. N. 174.
In some places, as near *Chinapatam*, this grows to be a large crooked tree. The quality of the timber is good. It is not the tree which produces the *Catechu*.

Mugli, Mimosa Covalum, Buch. MSS.
A large tree. Timber black, very strong, and fit for posts and beams; but, like that of the foregoing, I was told, does not take a polish. This last report of the natives seems to be ill founded.

Wullay Sujalu, Mimosa Tuggula, Buch. MSS.
A large tree, but its timber is said to be not durable. To judge from appearance, however, this seems to be an error.

Betta Sujalu, Mimosa odoratissima, L.
This is a large tree, which, according to the report of the woodmen, produces excellent durable timber.

Shalay, Ficus.
Used for beams, and pillars of a small size.

Atty, Ficus glomerata, Rox.
A large, useful tree. Its wood is remarkably light.

Cull Atty, Ficus rupestris, Buch. MSS.
In a good soil grows to a large size, but soon divides into branches. It is used for beams, posts, and planks.

Birsi, Ficus.
A large useless tree.

Dévadárum, Erythroxylon sideroxylloides, E. M.
Never grows to a large size; but its wood is odorous, durable, and capable of a polish. It is used by the poor instead of *sandal-wood.*

Sri Gunda, Santalum album. Sandal-wood of the English merchants. All the trees that were fit for sale have been lately cut by a *Bráhman*, who was sent on purpose from *Seringapatam.* He procured about three thousand trees; but in less than ten years no more will be fit for cutting. The common size of the tree at the root, when it is cut, is about nine inches in diameter; but it has been known to arrive at a circumference of three cubits. In either case, not

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above a third of the diameter of the tree is of value; the remainder is white wood, totally devoid of smell. The wood is of the best quality in trees that have grown on a steep rocky soil; that which grows in low rich situations produces wood of little value. The trees were cut partly by the servants of the *Bráhman*, and partly by woodmen hired on the spot. The branches and white wood were removed in the woods, and the billets were brought hither, and dried in the shade. Although the bottom of the stem, under the ground and immediately above the division into roots, is the most valuable part of the tree, no pains were taken to procure this, and the trees were cut above the surface of the soil. This want of economy is said to have proceeded from the stony nature of the soil; but this I doubt. Every thing relative to the price, market, or customs upon *sandal-wood* are here unknown; and the person who cut it was not under the authority of the *Amildar*. At two places in this hilly country the tree comes to great perfection; namely, at *Jalamangala*, between *Magadi* and *Chinapatam;* and at *Mutati Habigay*, near *Capala-durga*.

Jala, Shorea Jala, Buch. MSS.

Here it grows only to a small size; but at *Ráma-giri*, and many other places, it becomes large. It is said to take a polish, to be durable, and to be used for furniture. In *Mysore* it is on this tree only that the *Lac* insects breed. Formerly there were many trees near *Ráma-giri* that contained *Lac*, and paid a considerable rent; but during the war carried on by Lord Cornwallis they were destroyed by the armies. Although there are now great numbers of the trees, none of the insects are reared. This is attributed to the want of leases. The *Amildar* was wont to let the trees for no longer than one year; it can therefore be no object for an individual to supply the trees with insects, as he would not be certain of enjoying the fruits of his labour. Some settled bargain for a number of years ought to be entered into with those who are willing to introduce such a valuable article of cultivation.

Lac insects.

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Dinduga, Andersonia Panchmoum, Roxb. MSS.
A large valuable timber tree, that is used for planks, beams, pillars, and furniture. It abounds in gum, and is nearly allied to the *Conocarpus* of botanists.

Doda Tayca, Tectona robusta.
A few trees of this valuable timber are found in most places of this hilly tract; but in general they do not grow to be of a size sufficient for use. Some good timber may, it is said, be procured at *Mutati Habigay*, a place near *Capala-durga.*

Ursina Tayca, Nauclea cordifolia, Roxb.
Grows to be a large tree; and its timber is said to be equally valuable with that of the *Tectona*, or common *Teak.*

Cadaga, Cadaba, or *Cadava, Nauclea purpurea*, Roxb.
A large tree, the timber of which is much used.

Chaningy, Lagerstromia parviflora, Roxb.
In favourable situations it also grows to a large size; but its timber is of very little value. It may be improved, however, by soaking it in water for some months after it has been cut.

Hadaga.
A small tree; but its timber is used for furniture, door frames, and other purposes which require strong materials.

Mitly, Trophis aspera Koenigii.
A small tree; but its timber is much esteemed on account of its being hard, and taking a good polish.

Easy, Premna tomentosa.
Reported to be bad timber; but apparently without foundation. It is put as a frame work in the middle of mud walls in order to give them strength.

Bewu, Melia azadirachta.
A large timber tree, that is much used here, and from which a gum exudes.

Mara halay, Nerium tinctorium, Roxb. MSS.
The natives are acquainted with its dyeing quality. Its timber is

said to be hard, and white like ivory, and is used for small furniture, such as beds and chairs. CHAPTER III. June 19.

Tapissa, Ulmus integrifolia, Roxb.
Is a small tree, but makes beams, planks, and posts.

Elichi, Rhamnus jujuba, L.
Grows crooked; but its timber is hard, and is used for small furniture.

Heb Hessary, Uvaria tomentosa, Roxb.
A small tree that is also used for furniture.

Chica Hessary, Uvaria cerasoides, Roxb.
Useless.

Timbu Bayla, Ægle marmelos, Roxb.
A large tree, producing strong timber.

Nai Bayla, Limonia crenulata, Roxb.
Useless.

Bideru, Bambusa.
The *Bamboo* here is divided into two kinds: one solid, or nearly so, and called by the natives *Chittu;* the other hollow, and called *Doda.* They are not considered as distinct species, the solidity of the former being attributed to its slow growth in dry stony places. Not having had an opportunity of examining the fructification, I cannot determine how far this opinion is well founded. It is the only kind found among these hills; and, although not of great size, is very strong and heavy. For common purposes I do not think it so useful as the hollow kind: but it is admirably adapted for the shafts of spears, and by *Tippoo* was applied to that use for his cavalry.

Muruculu, Chirongia glabra, Buch. MSS.
In many parts, and especially near *Chinapatam*, this is the most common tree. Its wood is not much valued; but it produces large quantities of a dark-coloured gum. The fruit is esculent.

Hulu Muruculu, Antidesma alexiteria.
Of no use.

CHAPTER III.

June 19.

Cadu Nimbay, or *Cadimbay.*

A small tree, that produces very hard timber fit for bolts, and small beams.

Narwully, Cordia monoica, Roxb.

Ropes are made of its bark. The fruit is esculent, but tasteless.

Cambi, Gardenia.

Hay Cambi, Gardenia latifolia, Roxb.

These two trees are useless.

Mara Harulu, Jatropha curcas.

Its seed is collected for lamp oil. The dried stems answer excellently for match, as they burn slowly, and without flame.

Gheru, Anacardium semecarpus.

The fruit used in medicine, and for marking linen. The timber is useless.

Mudali, Ochna squarrosa.

A beautiful but useless tree.

Nelli, Phyllanthus emblica.

The timber is bad, yet the poor use it for beams and rafters. The fruit is pickled.

Cacay, Cassia fistula.

Used in religious ceremonies.

Chillu, Strychnos potatorum Koenigii.

The timber useless. The use of the fruit, in cleaning water, is known to the natives.

It must be observed, that the account I have given of the qualities of the timber trees is derived from the natives. I have had no opportunity yet of ascertaining their nature by experiments: but I have procured specimens of most of them; and from these specimens their real qualities may be hereafter determined. For this purpose, they have been transmitted to the Honourable Court of Directors, in whose Museum they have been deposited.

June 20. Appearance of the country.

20th *June*,—In the morning I went to *Taveri-caray*, by a road passing the whole way through woods. I saw only one small village,

which was occupied by iron smelters, and surrounded by a little cultivated land. The country round *Taveri-caray* is well cleared, and seems to have suffered little from the wars.

CHAPTER III.

June 20.

Two wild animals of the dog kind.

It is said, that in the great forests round *Savana-durga*, there is a small animal called the *Shin-Nai*, or red dog, which fastens itself by surprise on the neck of the tiger, and kills him. On this account the tiger is not so common in these large forests, as in the smaller woods. The *Shin-Nai* is quite distinct from the wild dog, which is said to be very common here, to grow to a large size, and to be very destructive to sheep. By this wild dog the natives probably mean the wolf. I have seen native drawings of the *Shin-Nai*, which appear to represent an animal not yet described.

June 21.

Face of the country.

21st *June*.—I went from *Taveri-caray* to *Bangalore*. Much of the country is covered with bushes, and consists of a very poor soil. The grĕater part of the arable lands near *Bangalore* are cultivated: but at some distance from it many fields are waste, owing to a want of people.

Irrigation.

The reservoirs are numerous, but small; many of them are designed for supplying cattle with drink, and not for cultivation, and are of the kind called *Cuttay*. The tank formed, like those in *Bengal*, by digging a square cavity into the ground, is here called *Gunta*. Above the *Ghats*, however, this manner of procuring water is not very common; but the most usual manner of coming at a spring is by digging a large square pit with sides almost perpendicular, and called *Boudy*. The workmen dig till they find the water, which is often twenty or thirty feet from the surface. Afterwards a narrow passage, with a gentle slope, is cut in one of the sides, and a stair is formed in it, by which the women descend to bring up the water in earthen pots. It is from these wells, chiefly, that water is drawn by the *Capily*, or leather bag wrought by two bullocks descending on an inclined plane. When applied to this use, the *Boudy* is called *Capily Bamy*. If the water rise so near the surface, that it can be thrown out, to irrigate the land, by two men swinging a basket fixed to

CHAPTER III. June 21.

ropes, the *Boudy* is then called *Guday Bamy.* Narrow wells, such as are commonly dug in Europe, are seldom used in *Mysore*, except for the *Yatam*, and rarely supply the inhabitants with drink.

Aletris nervosus.

The leaves of the *Aletris nervosus*, Roxb: are used here for making cordage. Before they are beaten to separate the fibres, they are steeped in water fifteen days, in order to rot the useless parts.

Sugar-cane.

On this day's journey I observed the cultivation of a kind of sugar-cane called *Maracabo*, or stick cane. This kind never grows thicker than the finger, and is very hard, and unproductive of juice; but it requires less water than the *Restali.* It seems to have been the original sugar-cane of the *Colar* district, of which all the country on this side of the central chain of hills forms a part. The farmers have lately introduced the *Puttaputti* from the lower *Carnatic*, and are extending its cultivation as fast as they can procure cuttings.

CHAPTER IV.

BANGALORE.

CHAPTER IV. June 22, to July 2. *Bangalore.*

FROM the 22d of June until the 2d of July I remained at *Bangalore*, or *Bangaluru;* a city which was founded by *Hyder*, and which, during the judicious government of that prince, became a place of importance. Its trade was then great, and its manufactures numerous. *Tippoo* began its misfortunes by prohibiting the trade with the dominions of *Arcot* and *Hyderábád*, because he detested the powers governing both countries. He then sent large quantities of goods, which he forced the merchants to take at a high rate. These oppressions had greatly injured the place; but it was still populous, and many individuals were rich, when Lord Cornwallis arrived before it, with his army in great distress from want of provisions. This reduced him to the necessity of giving the assault immediately, and the town was of course plundered. The rich inhabitants had previously removed their most valuable effects into the fort; but these too fell a prey to the invaders, when that citadel also was taken by storm. After the English left the place, *Tippoo* encouraged the inhabitants to come back, and by promises allured them to collect together the wrecks of their fortunes, from the different places to which these had been conveyed. No sooner had he effected this, than, under pretence of their having been friendly to the English, he surrounded the place with troops, and fleeced the inhabitants, till even the women were obliged to part with their most trifling ornaments. He then kept them shut up within a hedge, which surrounded the town at the distance of a *Coss*, till the advance of the army under General Harris made the guard withdraw. The

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inhabitants, not knowing whom to trust, immediately dispersed, and for some months the place continued deserted. The people, however, are now flocking to it from all quarters; and although there are few rich individuals, trade and manufactures increase apace; and the imports and exports are estimated already to amount to one fourth of what they were in its most flourishing state. The manufacturers and petty traders are still very distrustful and timid; but the merchants, many of whom have been at *Madras*, and are acquainted with British policy, seem to have the utmost confidence in the protection of our government.

Money.

At *Bangalore* almost every coin of *India* is current; but all accompts are kept in *Canter'raia Pagodas*, *Fanams*, and *Dubs*. The first is an imaginary money; the second, at present, exchanges for 18 *Dubs*. When any English officer resides in the fort, he once a month fixes the rate of exchange; and it may be supposed, that care has been taken, in doing so, to attend to justice, as the *Niruc*, or regulation made by the officers, has been always followed by the whole neighbourhood, although not at all under their jurisdiction.

Weights.

The *Cucha Seer* of this place weighs $25\frac{1}{2}$ *Rupees*; so that the *Maund* of *Bangalore* is equal to $42\frac{1}{2}$ *Seers* of the *Seringapatam* standard, or to a very little less than 26 pounds avoirdupois. Every weighable article, except such as are brought from *Seringapatam*, is sold by wholesale according to this weight; but in retail the *Seringapatam* standard is used. The bullock load is reckoned 8 *Maunds*, or nearly 206 lb.

Measures for grain.

The *Pucka Seer* measure is the same with that of *Seringapatam*. The *Candaca* contains only 160 *Seers*, or is equal to $5\frac{513}{1000}$ Winchester bushels. In order to avoid confusion, grain is seldom sold by the *Candaca*, but by the hundred *Seers*.

Land measure.

Crishna Ráyalu of *Vijaya-nagara*, once the sovereign of all the peninsula, established a valuation of the greater part of his dominions; and, perhaps with a view of carrying on this operation of finance with more exactness and facility, than he could otherwise

have done, he at the same time granted one tenth of the whole to the *Bráhmans.* In some places the *Bráhmans* received their share by an estimate of the quantity of seed sown; but in other places the land was measured. The standard for this measure was the *Acsaya Muttadu colu,* a rod equal in length to the height of the king, who was a tall man. The rod is not equal to the double *Gujah* of *Tippoo,* but may be taken at six feet. The whole land of each village was measured out into small plots, ten rods, or sixty feet, square; by which we may judge of the state, in the art of geometry, to which the subjects of the greatest *Hindu* monarch had, about three centuries ago, arrived.

Price of goods at *Bangalore.*

Having assembled the most respectable traders here, they gave me the accompanying price current, as the average rate of sale of the principal articles of commerce. In order to make the valuation uniform, the value of the *Fanam* is taken at the exchange of *Seringapatam.*

Average price current at *Bangalore.* Goods sold by the *Maund* of 42½ *Seers.*

Kind of Goods.	Quality.	*Sultany Fanams.*		English Money. Cwt.		
		Maund	Cwt.	£.	*s.*	*d.*
Betel-nut - - - - -	*Deshavara* - - - - - -	20 8/10	90¼	3	0	8¼
Sandal-wood - - - -	*Nagara* 1st sort - - -	12	52⅛	1	15	1
	——— 2d sort - - -	10	43 4/10	1	9	2
	——— 3d sort - - -	8	34¾	1	3	4
	Walagram 1st sort - -	8	34¾	1	3	4
	——— 2d sort - -	6	26 1/10	0	17	6½
	——— 3d sort - -	5	21 9/10	0	14	7
Arulay, or *Myrobalans* - -	- - - - - - - - - -	1½	6½	0	4	4½
Cardamoms - - - - -	*Ghettadu* - - - - - -	100	434	14	11	8
	Tripathi - - - - - -	50	217	7	5	10
Cut, or *Terra japonica* -	White - - - - - - -	16	69½	2	6	8
	Red - - - - - - -	14	60 8/10	2	0	10
	Black - - - - - - -	12	52⅛	1	15	1
Asafœtida - - - - -	*Multany* - - - - - - -	200	868	29	11	4
	Codeal - - - - - - - -	160	695	23	6	8
	Bad - - - - - - - - -	120	521¼	17	10	10

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Kind of goods.	Quality.	Sultany Fanams. Maund.	Sultany Fanams. Cwt.	English Money. Cwt. £.	s.	d.
Cossumba - - - - -	Prepared 1st sort - - - -	13½	58⅝	1	19	5½
	———— 2d sort - - - -	10	43 4/10	1	9	2
	Flowers 1st sort - - - -	20	86 8/10	2	18	4
	——— 2d sort - - - -	16	69½	2	6	8
Dates - - - - - - -	Green or 1st quality - - -	10	43 4/10	1	9	2
	Common or 2d quality - -	7	30 4/10	1	0	5
Saffron - - - - - - -	*Cashemere* - - - - - -	2400	10425	350	1	2
	European - - - - - - -	1200	5212½	175	0	7
Tundu flowers - - - -	*Nagara* - - - - - - -	10	43 4/10	1	9	2
	Denkina cotay - - - -	17	73 8/10	2	9	7
Nutmegs - - - - - -	- - - - - - - - - - -	200	868	29	11	4
Cloves - - - - - - -	- - - - - - - - - - -	240	1042½	35	1	8
Mace - - - - - - -	- - - - - - - - - - -	1720	7471½	250	1	9¼
Raw silk - - - - - -	*Bily-china*, or white china -	500	2172	73	8	7¼
	Casturi do. or yellow do. -	460	1998	67	2	0
	Rajanagari white and yellow	380	1650½	56	8	7
	Yekatava or *Mugaduty* - -	120	521¼	17	10	10
Camphor - - - - - -	Unrefined 1st sort - - -	160	695	23	6	8
	———— 2d sort - - -	120	521¼	17	10	10
Benjamin - - - - - -	*Canday sembrany* - - -	60	260⅝	8	15	5
	——— 2d quality - - -	40	173¾	5	16	8
	——— 3d quality - - -	30	130 5/16	4	7	8½
Sugar candy - - - -	China - - - - - - - -	30	130 5/16	4	7	8⅛
	Namagundla - - - - -	16	69½	2	6	8
Sugar - - - - - - -	*Madras* - - - - - - -	20	86 8/10	2	18	4
	Namagundla - - - - -	14	60 8/10	2	0	10
Jagory sugar cane - - -	Best - - - - - - - -	4½	19½	0	13	1½
	Second - - - - - - -	3½	15 2/10	0	10	2½
———Date - - - - -	- - - - - - - - - - -	2	8⅔	0	5	10½
Tin - - - - - - - -	- - - - - - - - - - -	35	152½	5	2	1
Lead - - - - - - -	- - - - - - - - - - -	10	43 4/10	1	9	2
Zinc - - - - - - -	- - - - - - - - - - -	20	86 8/10	2	18	4
Copper - - - - - - -	- - - - - - - - - - -	50	217	7	5	10
Quicksilver - - - - -	- - - - - - - - - - -	160	695	23	6	8
Indigo - - - - - - -	*Carada* 1st sort - - - -	100	434	14	11	8
	——— 2d sort - - - -	60	260⅝	8	15	5
	Bapaly 1st sort - - - -	40	173¾	5	16	8
	——— 2d sort - - - -	20	86 8/10	2	18	4
Shicai fruit - - - -	- - - - - - - - - - -	1	4⅓	0	2	11¼
Popli-chica dye - - -	- - - - - - - - - - -	6	26 1/16	0	17	6½
Lodu-chica do. - - -	- - - - - - - - - - -	25	108½	3	12	11
Honey - - - - - - -	- - - - - - - - - - -	6	26 1/16	0	17	6½
Bees-wax - - - - - -	Yellow - - - - - - - -	30	130 5/10	4	7	8½
Stick-lac - - - - - -	Cleaned - - - - - - - -	14	60 8/10	2	0	10
	Including the sticks - -	6	26 1/16	0	17	6½
Alum - - - - - - -	- - - - - - - - - - -	16	69½	2	6	8
Muddi-chica dye - - -	- - - - - - - - - - -	6	26 1/16	0	17?	6½
Dinduga gum - - - -	1st sort - - - - - - -	8	34¼	1	3	4
	2d sort - - - - - - - -	6	26 1/[illegible]	0	17	6½

Kind of Goods.	Quality.	Sultany Fanams. Maund.	Sultany Fanams. Cwt.	English Money. Cwt. £.	s.	d.
Borax, or *Biligara* - -	1st quality - - - - - -	50	217	7	5	10
	2d quality - - - - - -	40	173¼	5	16	8
	3d quality - - - - - -	30	130 5/16	4	7	8½
Opium - - - - - -	- - - - - - - - - - -	320	1390	46	13	4
Soulu, or soda - - -	- - - - - - - - - - -	1½	6½	0	4	4½
Suja cara, or soda - -	- - - - - - - - - - -	15	65⅙	2	3	10¼
Capili-podi a dye - - -	*Ráma-giri* - - - - - -	70	304 1/16	10	4	4½
	Nagara - - - - - - -	40	173¾	5	16	8
Tamarinds - - - - - -	- - - - - - - - - - -	1½	6½	0	4	4½

Goods sold by the *Maund* of 40 *Seers*.

Ghee - - - - - - -	- - - - - - - - - - -	18	83¼	2	15	9½
Betel-nut - - - - - -	*Walagram* - - - - -	16	73¾	2	9	7¼
Black pepper - - - -	- - - - - - - - - - -	16	73¾	2	9	7¼

Goods sold by the *Maund* of 44 *Seers*.

Cotton wool - - - - -	Cleaned white - - - -	13⅓	56½	1	18	0¼
	——— red - - - -	12	50½	1	13	11¾
	Uncleaned - - - - - -	11	46½	1	10	11¾

Goods sold by the *Candaca* Measure of 200 *Seers*.

Kind of goods.	Quality.	Sultany Fanams. Candaca.	Sultany Fanams. Bushels.	English Money. Bushel.		
Salt - - - - - - -	*Madras* - - - - - -	26½	3 8/10	0	2	6½
Ragy - - - - - - -	- - - - - - - - - - -	12	1 7/10	0	1	2
Rice - - - - - - -	Best - - - - - - -	66½	9½	0	6	5
	Coarse - - - - - - -	28½	4	0	2	9
Wheat - - - - - - -	- - - - - - - - - - -	57	8¼	0	5	6

Coco-nuts per hundred 10 *Fanams*, or 6*s*. 8½*d*.

A [illegible] sheep ⅓ of *Star-Pagoda*, or 2*s*. 5½*d*.

Milk 3 *Seers* for the *Fanam*, or 2¼*d*. an ale quart.

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Commerce with the western sea-coast.

There is only one place below the western *Ghats*, with which at present the people of *Bangalore* carry on any trade. It is called here *Codeal*, or *Cowdal*, and in our maps is named *Mangalore*. To that place are from hence sent cotton cloths, both white and coloured, and manufactured in this neighbourhood. The returns are raw silk and silk cloths. The trade to *Calicut* was formerly very considerable; but at present, owing to the unsettled state of the province of *Malabar*, it is at a stand. The imports were all kinds of foreign goods brought in by sea. The exports were coloured cotton cloths. Some persons are now about to venture a renewal of this commerce.

Trade with the northern part of the peninsula.

The trade with the country ceded to the *Nizam*, and *Marattahs*, south from the *Krishna* river, is carried on chiefly by the merchants of *Balahari (Bellary)*, *Advany (Adoni)*, *Aggady*, *Darwara*, *Hubuli*, *Naragunda*, *Navalagunda*, and *Gutti*. Agents from each of these places reside here, receive goods from their principals, and sell them to the merchants of *Bangalore*. Sometimes, but rarely, the merchants of *Bangalore* go for a cargo of goods; but at these places they have no agents. In the countries of the *Nizam*, and *Marattahs*, merchants meet with no disturbance; but the duties are rather heavy. The chief import from thence is cotton wool, with some coarse cotton thread, both white and red; coarse white, red, and blue cotton cloths; muslins; *Dotras*, or cotton cloths with silk borders; blankets worth from two to three *Pagodas* each; wheat; asafœtida; terra japonica; *Carthamus* flowers, or *Cossumba; Seringi* root, a red dye used at *Saliem;* dates; and *Dratcha*, a kind of bad raisin. The returns from *Bangalore* are made chiefly in money; but some coloured cotton and silk cloths are also sent.

Trade with *Poonah*.

Some *Gossai* merchants from *Poonah* bring shawls, saffron, and musk from *Cashemire*, and *Persian* pearls from *Surat*. The returns are made in money, and *Manar* pearls.

With *Burrahunpour*.

From *Burrahunpour Patan* merchants formerly brought *Chitties*, or chintz, and gold lace, cloth, and thread. The exports were money, and pearls. This trade has always been protected by the *Marattahs;* but, owing to the oppressions of the Sultan's government, has for

some years been at a stand. Some merchants are now preparing investments for its renewal.

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From *Hyderábád, Narain-petta, Guldometcullu,* and other places in the old territories of the *Nizam, Patan* and *Gujerati* merchants brought red cotton cloth, flowered with gold and silver, for the dress of the children of the Mussulman chiefs, and other rich persons; turbans; and fine manufactures of cotton. The returns are in money and pearls. In the reign of the Sultan, this trade was contraband, and now suffers interruption from the robbers that are numerous in the *Nizam's* dominions.

Trade with the eastern sea-coast.

The trade between the dominions of the Nabob of *Arcot* and *Bangalore* is carried on at *Wallaja-petta,* chiefly by the merchants of this place, who constantly keep agents there; at times, however, they send cargoes to other places below the *Ghats.* The imports from the lower *Carnatic* are salt; sulphur; tin; lead; zinc; copper; European steel, paints, and glue; indigo; nutmegs; cloves; camphor; benjamin; *Modi,* a hot root used in medicine; *Tripathi cardamoms (grana paradisæ?);* china root; raw silk of the kinds called *Bily china, Casturi china, Rajanagari, Cumercani, (Comercally* in *Bengal?), Seidabad* and *Caia,* of which the first is by far the best; *Bengal, China, Walinda,* and *Burrahunpour* silk cloths; *Conjeveram,* and *Arnee* cotton cloths; English woollen cloth, canvas, and blankets; *Goni* cloth; packthread; English and native paper from *Lala-petta, Wallaja-petta,* and *Tripaturu;* English hardware, glassware, and looking-glasses; China sugar-candy; *Bengal* sugar; dates; and almonds. The returns from *Bangalore* are chiefly *betel-nut, Sandal-wood,* black pepper, true cardamoms, *Shicai,* and tamarinds. Cloths, I suspect, are also sent; but the merchants here deny it. Pearls and red coral were formerly brought up from the low country; but ever since the war this trade has been at a stand. The balance of money is in general due by the low country merchant.

The duties levied by the *Nabob* on cloths amount to four *Canter'raia Pagodas,* or 3*s.* 8¼*d.* on the bullock-load. This, on coarse

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goods, amounts to about four per cent. of their value; but on fine goods is a mere trifle. Small articles of various kinds pay only 2½ *Pagodas*, or about 20 pence, on the bullock-load. No estimate can be formed of the per centage, to which this amounts; as some bullock-loads cost five *Pagodas*, and some 500. On all goods going from this country the duties are 1½ *Canter'raia Pagodas*, or one shilling on the bullock-load. Salt pays nothing. The whole of the duties are no great burthen, and the merchants do not complain of any trouble or delay in the collection. They consider the duties as a pledge for the protection of the government of the country through which they pass; and the custom-houses are bound to make good all losses by robbers.

No direct trade has been yet carried on between *Bangalore* and the Company's *Jaghire;* but some *Gujerati* merchants, now here, are making the necessary arrangements for opening a trade directly with *Madras.*

Tanjore merchants bring hither pearls, and take away money.

The merchants of the *Bara mahal,* and *Saliem* districts, annexed by Lord Cornwallis to the Company's dominions, send cotton cloths, and take back the same articles that are carried to *Wallaja-petta.* Agents from *Krishna-giri* and *Vanambady* constantly reside here; and merchants occasionally come from *Saliem* and *Darapuram.* The merchants here have no agents at those places, but occasionally send goods thither.

In the dominions of the *Raja* of *Mysore* a considerable trade is carried on with several places in the *Nagara* district, namely *Bidderuru, Bogunji, Sringa-giri, Copa, Kigganymara, Calasa, Munday-cara,* and *Muturu.* From these places are imported great quantities of *Betel-nut,* black pepper, *Sandal-wood,* and cardamoms, partly by the merchants of *Bangalore,* and partly by those of the *Nagara* district. The returns from hence are grain; tobacco; tamarinds; blankets; muslins, turbans, coloured cotton stuffs, and silks the manufacture of this place; and the paper of the lower *Carnatic.* Both

parties prefer selling their goods by wholesale, and laying in their returning investment by the same means; but they are seldom able to do so, and are more commonly reduced to the necessity of leaving part of their goods in the hands of an agent, and of purchasing their new investments at the different weekly markets in the country. Three quarters of the returns from *Bangalore* to *Nagara* are made in cash.

From *Seringapatam* the imports to *Bangalore* are black pepper, *sandal-wood*, and cardamoms: the return is made in every kind of cloth manufactured here, with all the kinds of goods brought from the lower *Carnatic*, to a far greater value than that of the goods imported from *Seringapatam*.

From *Gubi* and its neighbourhood, in the centre of the *Raja's* dominions, are imported pepper, *betel-nut*, and *coco-nuts*. The merchants of *Bangalore* make the purchases at the weekly markets, and carry with them chiefly money; but also turmeric, the produce of this place; and oxen from *Hosso-cotay*, and *Colar*.

To *Chatrakal (Chittledroog)* the merchants of *Bangalore* send the manfactures of the place, and in return receive country blankets. The dealers carry their own goods from one place to the other, and generally return with the produce in cash.

From *Doda Balla-pura* occasional traders bring fine red cotton cloth manufactured there, and take back the produce in money.

From *Namagundla*, beyond *Nandi-durga*, are brought *Jagory*, raw sugar, and sugar-candy, which are also sold for cash.

The places east from *Bangalore*, such as *Colar*, and *Nursapura*, send money, and procure *betel-nut* and black pepper.

Betel-nut is the principal article of trade at *Bangalore*, and is of two kinds; the best, called *Deshavara*, comes from the *Nagara* district; the inferior quality is called *Wallagram*, and comes from *Gubi*, and all the places south from *Sira*, and north from *Madura*. This last is chiefly reserved for country use: but the *Deshavara* is

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dispersed through the country to the eastward, as far as *Madras*. It is all what is called *boiled nut*.

In this country black pepper is, next to *betel-nut*, the most common article of commerce. Of this also there are two kinds, the *Codali*, and *Baygadi;* the difference in value is inconsiderable, but the *Codali* is reckoned rather the best. Much of it is sent down to the *Baramahal*, and to the dominions of the *Nabob* of *Arcot*. This was one of the articles in which the Sultan traded.

Sandal-wood is also a considerable article of commerce at *Bangalore*. The best comes from the *Nagara* district, and from the country bordering on the western *Ghats*. An inferior kind comes from *Madura*, *Denkina-cotay*, *Deva-ráyana-cotay*, and other places in the ridge of hills which run north from *Capala-durga*. Each kind is divided into three sorts : the first is that which is between the root and first branches; the second is that of the large branches ; and the third is that of the small branches, so far as these contain red wood. The *sandal* tree, according to the idea of the natives, is of two kinds; male and female: the former of which is dark, the latter pale-coloured ; both are of the same value. The *sandal* of the old tree is said to be more valuable than that from a young one ; but the merchants, in forming an estimate of its value, go entirely by the strength of its smell. During *Tippoo's* government none of the *sandal-wood* came to this market: he either did not allow it to be cut, or else stored up in his forts whatever was felled.

Black blankets, or *Cumlies*, are here a considerable article of commerce ; and some merchants, of the *Carubaru* cast, trade in nothing else. They are brought chiefly from *Gori Bideruru* in the *Madhu-giri taluc*, and also from *Sira*, *Chatrakal*, and *Balahari*. These last are by much the best ; next to them are those from *Chatrakal*. They vary in price from 4 *Fanams*, or 2*s*. 9¼*d*. to 15 *Pagodas*, or 3*l*. 3*s*. 6¾*d*. By far the greater part are under the value of one *Pagoda*, or 6*s*. 8½*d*. They are chiefly retailed here for country use.

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The importation of cotton wool to *Bangalore* is very great, and is carried on entirely by the *Pancham Banijigaru*. There are two kinds of cotton wool; one called red, and another white; which distinction does not arise from any difference in the plants, but from the quality of the soil in which they are raised. The white is the best; and both are imported clean, and fit for use. It comes mostly from the dominions of the *Marattahs*, and the *Nizam;* and is brought hither by the merchants from *Naragunda, Navalagunda*, and *Savonuru* in the *Duab;* from *Jalalu*, the district in which *Gajéndraghur* is situated; and from *Hubuli*, in which stands *Darwara*, all of which belong to the former: and from *Balahari* and *Advany*, which belong to the latter power. All the merchants are natives of these places, and in the *Marattah* country are very well protected. They sell by wholesale to the traders of *Bangalore*, who retail it out in the town and neighbourhood. A bullock-load of cotton, coming from the *Marattah* country to *Bangalore*, and worth from 14 to 20 *Ikeri Pagodas*, or from 5*l.* 10*s.* 3*d.* to 8*l.* 1*s.* 8*d.* pays in all, of transit duties, nearly two *Canter'raia Pagodas*, or 13*s.* 5*d.* In this neighbourhood it has been in vain attempted to cultivate cotton. For family use a little has been raised; but the produce has been very small.

Drugs.

A kind of drug merchants at *Bangalore*, called *Gandhaki*, trade to a considerable extent. Some of them are *Banijigaru*, and others are *Ladaru*, a kind of Mussulmans. They procure the medicinal plants of the country by means of a set of people called *Pacanat Jogalu*, who have huts in the woods, and, for leave to collect the drugs, pay a small rent to the *Gaudas* of the villages. They bring the drugs hither in small caravans of ten or twelve oxen, and sell them to the *Gandhaki*, who retail them. None of them are exported. Small traders from the neighbouring towns bring *Popli* and *Muddi* barks; honey, and wax; *Agalasunti*, and *Hayguntigay*, two medicinal roots; *Myrobalans;* and *Dinduga* gum; all which they procure from the *Eriligaru*. The whole wax of the country used formerly to be

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brought hither; but now a great part of it is carried directly to the lower *Carnatic.* The quantity annually procured does not exceed a hundred *Maunds,* or about 2,425 pounds. The *Dinduga* gum might be had to the extent of two or three hundred *Maunds,* or from 4,850 lbs. to 7,275 lbs. a year, if money were advanced for it at the rate of from 8 to 12 *Fanams* a *Maund,* or from 1*l.* 3*s.* 4*d.* to 1*l.* 15*s.* 1*d.* the hundred weight. At present a small quantity only is collected for the use of the silk-weavers. The cotton-merchants from the *Duab* of the *Krishna* supply the *Gandhaki* with *Cut,* or terra japonica; with asafœtida; *Mailtuta* and *Majful,* two substances used by the natives in cleaning their teeth; *Costa,* a medicine; *Loduchica,* a dye; sulphur; alum; borax; and opium. From the *Gandhaki* these merchants purchase *Muddi* and *Popli* dyes; *lac;* and wax. The *lac* is partly bought from the *Woddar,* who collect it in the neighbourhood; and partly from traders, that bring it from *Madhu-giri, Godagiri, Banirgutta,* and *Denkina-cotay.* The spices, the *Tagashay* seed, and indigo, are procured by the *Gandhaki* from the lower *Carnatic.* Fossile alkali, or soda, is partly brought from *Krishna-giri* in the *Bára-mahál;* and partly from *Chin'-ráya-pattana, Gutalu,* and *Holy Narasinga-pura. Tonda* flowers, for dyeing, are brought from *Nagara,* and from *Denkina-cotay;* those produced in the latter place are the best. Most of the *Capili-podi* dye, or flower produced on the fruit of the *Rotleria tinctoria* of Dr. Roxburgh, comes from *Chin'-ráya-pattana;* but a little is procured from *Ráma-giri.* The *Cossumba,* or *Carthamus tinctorius,* that grows in the country, is not nearly sufficient for its demand; and much of this article is imported by the cotton-merchants from the *Duab.*

The trade in salt from the lower *Carnatic* is very considerable, as none but the poorest people eat that made in the country. It is carried on by two classes of people: the *Woddaru,* or tank-diggers; and the *Coramaru,* who, in the intervals between their commercial expeditions, make baskets. The salt is brought up from the lower *Carnatic* by people of the same casts; and by those, who reside here,

is distributed throughout the country as far as *Magadi*, and *China-patam.* The people who bring the salt take back, in return, tamarinds, seeds for making oil, and all kinds of grain that happen to be cheaper here than in the low country.

Carriage of goods.

Goods of all kinds are transported by cattle in back loads. The best cattle are used in the cotton trade, and belong to *Pancham Banijigaru*, natives of the country where the cotton grows. These people speak the *Karnata* as their native language, but do not intermarry with the *Pancham Banijigaru* of *Bangalore.* The bullocks employed in this trade are very fine animals; and each brings from 12 to 15 *Maunds* of cotton, or from $327\frac{1}{2}$ lb. to $409\frac{3}{4}$. They travel daily at the rate of 3 computed *Cosses*, which may be about twelve British miles; and in three hours they perform this journey. Besides straw, they are fed on oil-cake, and the seed and leaves of the cotton-plant. They cost from 15 to 25 *Pagodas*, or from 5*l.* 0*s.* $8\frac{1}{2}$*d.* to 8*l.* 7*s.* $10\frac{3}{4}$*d.* In the same manner are fed the oxen which are employed in transporting *betel-nut*, pepper, and most other kinds of goods; but these cost only 4 or 5 *Pagodas*, or from 1*l.* 6*s.* $10\frac{1}{4}$*d.* to 1*l.* 13*s.* 7*d.* They also travel three *Cosses* a day; but their average load is only eight *Maunds*, or $206\frac{1}{4}$ lb. Many *Banijigaru* follow the profession of carriers, and keep oxen for the purpose. The rate of hire is always fixed on the average load of eight *Maunds*, and never according to time, but always by distance. The carriage of a bullock-load of pepper, *betel-nut*, or other articles that stow well, and may be equally divided, costs 15 *Fanams* from *Bangalore* to *Wal-laja-petta*, distant about 145 British miles; on articles that cannot be so well divided, the price is about 18 *Fanams.* The first gives $1\frac{520}{1000}$ penny a mile for the hundred weight; the second gives $1\frac{846}{1000}$ penny. The carriers are not answerable for any accident that may happen to the goods; the merchant therefore must send with them some trusty person, who is generally a younger branch of the family. The bullock employed in carriage is always shod with slight iron shoes.

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Buffaloes of the northern breed are sometimes employed, especially by cloth-merchants; their great size enabling them with convenience to support a bulky article. They are very fine animals, and their common load is 15 *Maunds*, or about 410 lb. with which they travel at the rate of 12 or 15 miles a day; but they require higher feeding than the bullock does.

The people who transport salt and grain generally use asses, or a very poor kind of bullock. The ass carries from 40 to 50 *Seers* measure, or from $1\frac{39}{100}$ bushel to $1\frac{74}{100}$ bushel. They can travel about six miles a day, and are all males purchased from the washermen who breed them. Two men take charge of twelve loaded asses. These creatures get nothing to eat but what they can pick up by the sides of the road. Their cost is from $1\frac{1}{2}$ to 2 *Pagodas*, or from 10*s.* $0\frac{1}{4}$*d.* to 13*s.* $5\frac{1}{4}$*d.*

The bullocks employed by these people are treated much in the same manner as the asses; but each carries from 60 to 80 *Seers* of grain, or from $2\frac{98}{100}$ bushels to $2\frac{784}{1000}$ bushels. Merchants, who deal in *betel-nut*, pepper, &c. have sometimes had recourse to this poor kind of conveyance; but it is very rarely done, the slowness with which these cattle travel rendering the dealer liable to suffer great loss from fluctuations in the markets.

Account of the commerce from the custom-house officers.

This is the information collected from all the most respectable merchants of the place. According to the custom-house accompts the imports are salt; sugar; sugar-candy; coco-nuts; *betel-nut;* pepper; *cut,* or terra japonica; ginger; *capili, patunga* root, and *muddi* dyes; wax; *lac;* steel; false gilded paper; indigo; *sandal-wood;* salt-petre; sulphur; yellow arsenic; *cinnabar;* brass and copper, wrought and unwrought; lead; zinc; paper; dates; *casturi,* a kind of turmeric; benjamin; *sompa,* one of the carminative seeds; asafœtida; camphor; cardamoms; cloves; nutmegs; mace; *gopichandana,* a clay used by the *Bráhmans* for making their marks; *rudrakshi,* a fruit used by the *Bráhmans* for their beads; almonds; opium; *golai,* a kind of opium; *sanacallu,* the stone used for powdering

sandal; balapum, or pot-stone; allum; five medicinal salts from *Madras; bang;* oil of *sesamum; ghee;* honey; oil of the *Melia Azadarichta;* coco-nut oil; *Carnatic* tobacco; *Madras* cloths, cotton, silk, and woollen; raw silk; red and white cotton thread; carpets; *Thibet* cow tails; *cossumba* flowers; *Burrahunpour* cloths; *Balahari* cloths; *Cashemire* goods brought by *Gossais*, who travel with horses and camels; the goods are, musk, saffron, carpets, and shawls; *mutabi*, or gold cloth of *Hyder-ábád; cumlies*, or country blankets from *Chatrakal* and *Balahari;* English blankets, or *hutsu cumlies;* paints; goats, and sheep from *Penu-conda;* hard-ware; *palmira*, and date *Jagories; molasses; myrobalans;* wheat from *Balahari* and *Penu-conda;* besides the produce of the neighbouring country.

The trade of the country not having been yet opened a year since the inhabitants had deserted the place, no proper estimate can be formed of the quantity of exports and imports; but it is on the increase every month, and is now about one fourth of the quantity that was exported and imported in the most flourishing time of *Hyder's* government. The son of the person who had then charge of the custom-house, states the following particulars of the trade at that period. In one year there were imported 1500 bullock-loads of cotton wool; 50 bullock loads of cotton thread; 230 bullock loads of raw silk; 7000 bullock loads of salt; foreign goods from *Madras* 300 bullock loads. At the same time were exported of *betel-nut* 4000 bullock loads, and of pepper 400 bullock loads.

Extent of the manufactures.

From the quantity of the raw materials some estimate may be formed of the extent of the manufactures: 1500 bullock loads of cotton wool, and 50 of cotton thread, make rather more than 5100 hundred weight, worth about 8160*l.* and 230 bullock loads of raw silk make 47,437½ lb. worth about 27,000*l.*

Origin of the names given to different pieces of cloth, as used in the dress of the natives.

The cloths here being entirely for country use, and never having been exported to Europe, are made of different sizes, to adapt them to the dress of the natives; and the *Hindus* seldom use tailors, but wrap round their bodies the cloth, as it comes from the weaver.

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Shiray.

1. The cloth which the women wrap round their haunches, and then throw over their heads and shoulders like a veil, is from 14 to 17 cubits long, and from 2 to $2\frac{1}{2}$ cubits wide. It is called *Shiray*.

Kirigay.

2. If these cloths are for the use of girls, they are called *Kirigay;* and are from 9 to 12 cubits long, and from $1\frac{1}{4}$ to $1\frac{3}{4}$ cubit broad.

Cupissa.

3. The little jacket which the women at this place wear, is made up in pieces containing 12 jackets, and called *Cupissa tan*. These are $14\frac{1}{2}$ cubits long, and two cubits, or two cubits and a nail, broad.

Dotra.

4. Men wrap round them a cloth called *Dotra*, which is from 10 to 12 cubits long, and from $2\frac{1}{4}$ to $2\frac{1}{2}$ cubits broad.

Bucha Khana.

5. The wrappers of boys, called *Bucha Khana*, are 6 or 7 cubits long, and $1\frac{1}{4}$ or $1\frac{3}{4}$ cubit broad.

Shalnama.

6. Cloth for wrapping round the head and shoulders of men, like shawls, is named *Shalnama;* and is 6 cubits long, and $2\frac{1}{2}$ broad. Smaller ones are made for children.

Paggoo.

7. *Paggoo*, or turban pieces, are from 30 to 60 cubits long, and $\frac{3}{4}$ of a cubit broad.

Having assembled the different kinds of weavers, I took from them the following account of their various manufactures.

Cloths made by the *Puttuegars.*

The *Puttuegars*, or silk-weavers, make cloth of a very rich, strong fabric. The patterns for the first five kinds of dresses are similar to each other; but are very much varied by the different colours employed, and the different figures woven in the cloth; for they rarely consist of plain work. Each pattern has an appropriate name, and, for the common sale, is wrought of three different degrees of fineness. If any person chooses to commission them, whatever parts of the pattern he likes may be wrought in gold thread; but, as this greatly enhances the value, such cloths are never wrought, except when commissioned. The fabric of the sixth kind of dress is also strong, and rich; but the figures resemble those on the shawls of *Cashemire*.

The turbans are made of a thin fabric of cotton and silk.

The *Puttuegars* make also, in a variety of figured patterns, the first three kinds of dresses of silk and cotton.

They also make *Sada Putaynshina*, or thin white muslins with silk borders. These are either plain, or dotted in the loom with silk or cotton thread; and are frequently ornamented with gold and silver. This is an elegant manufacture, and is fitted for the first five kinds of dresses.

Plain green muslin with silk borders for the first three kinds of dresses, is also made by the *Puttuegars;* but not of so fine a quality as that made by the *Devangas*, as will be afterwards mentioned.

The same may be said of the coloured striped muslin with silk borders, called *Dutari Huvina*, which is used also entirely for female dresses, and is wrought of various patterns.

Art of dyeing among the *Puttuegars*.

The *Puttuegars* dye much of their own silk; and they gave me the following account of their processes.

The silk is thus prepared for dyeing, the operation being performed sometimes on the raw material, and sometimes on the thread. Take 5 *Seers* $3\frac{223}{1000}$ lb. of silk, 3 *Seers* ($1\frac{934}{1000}$ lb.) of *Soulu*, or impure soda, and $1\frac{1}{2}$ ($0\frac{967}{1000}$ lb.) of quick-lime; mix the soda and lime, with 4 or 5 *Seers*, or about 308 cubical inches, of water; and boil them for half an hour. One half of the boiling ley is poured into a wide-mouthed pot, and one half of the silk is immediately put into it suspended on a stick. If it be not sufficiently wet, it will not take the colour: and, if it be allowed to remain any length of time, the silk is destroyed. The rest of the silk is now dipt into the remaining ley; then washed in cold water, and dried in the sun.

If a white silk be wanted, take three *Seers* ($1\frac{934}{1000}$ lb.) of prepared silk, 3 *Seers* of *Soulu*, or impure *soda*, 1 *Dudu* weight ($6\frac{471}{1000}$ drams avoirdupois) of indigo, and 18 *Seers* (about 1235 cubical inches) of water; boil them for about two hours. Then wash the boiled silk in some hot water, and dry it. In this operation much care is necessary; as by too much of the *Soda* the silk is apt to be spoiled, and, if it be boiled too short a time, it will not be sufficiently white.

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The workmen judge of the time, by taking up a few threads on a stick, and putting on them a drop of cold water: whenever they appear of a proper colour, the silk must be immediately washed in clean water.

To give the red dye with *Lac* take $1\frac{1}{2}$ *Maund* ($38\frac{67}{100}$ lb.) of *Lac*, cleared from the sticks, $1\frac{1}{2}$ *Seer* ($0\frac{967}{1000}$ lb.) of *Lodu* bark, $1\frac{1}{2}$ *Seer* of *Suja Cára*, or *soda*, and two *Dudus* weight ($12\frac{942}{1000}$ drams) of turmeric. Put them into a narrow-mouthed pot, capable of holding 80 *Seers* (5492 cubical inches), with 40 *Seers* (2746 cubical inches) of water, and boil them four hours; then decant the liquor, which is impregnated with the dye; and, having to the same materials added 20 *Seers* (1373 cubical inches) more of water, boil them again for three hours, decant this liquor into the former, and then, for three hours, boil the materials a third time, with 10 *Seers* ($686\frac{1}{2}$ cubical inches) of water. Decant this also into the two former, and preserve, in a covered pot, the whole liquor for eight days. At the end of this period the workman judges how much silk his materials will dye. If the *Lac* has been good, it will dye 5 *Seers* ($3\frac{223}{1000}$ lb.); but if it be poor, it will not dye more than $3\frac{1}{2}$ *Seers* ($2\frac{256}{1000}$ lb). For 5 *Seers* of silk take 20 *Seers* ($12\frac{39}{100}$ lb.) of tamarinds, and for two days infuse them in 18 *Seers* (1235 cubical inches) of water. Then strain the infusion through a thick cloth, till about 5 *Seers* (343 cubical inches) of clear infusion are procured. Put this into a large open pot with the silk, and warm them, until they be rather too hot for the hand. Take out the silk, and pour into the warm infusion of tamarinds three quarters of the decoction of *Lac*, strained through a cloth. Then return the silk, and boil it for three hours. After this, examine the silk. If it have received a proper colour, nothing more is added; but if the colour be not deep enough, the remaining decoction is strained, and added by degrees, till the colour is completed. The pot must then be taken from the fire, and from time to time this silk must be examined with a stick. If the colour be blackish, some tamarind infusion must be added. If too light,

it must be again boiled with some more of the decoction of *Lac*: when cool, the silk must be washed in cold tank water, and dried in the shade. This is the finest red dye in use here: in some places cochineal is used; but it is much more expensive. The *Lac* dye is not discharged by washing.

The *Puttuegars* dye their silk of a pale orange colour, with the *Capili podi*, or dust collected from the fruit of the *Rotleria tinctoria*. For 5 *Seers* of silk ($3\frac{223}{1000}$ lb.) prepared for dyeing, take three *Seers* ($1\frac{934}{1000}$ lb.) of *Capili* reduced to a fine powder, and sifted through a cloth; 4 *Dudus* ($1\frac{619}{1000}$ oz.) weight of *Sesamum* oil; $1\frac{1}{4}$ *Seer* ($12\frac{892}{1000}$ oz.) of powdered *Soulu*, or soda; 1 *Seer* ($10\frac{314}{1000}$ oz.) of *Suja Cara*, another kind of soda, and three *Dudus* weight ($1\frac{213}{1000}$ oz.) of alum; and put them in a pot. Then take $2\frac{1}{2}$ *Seers* ($1\frac{616}{1000}$ lb.) of *Soulu*, and boil it in about $3\frac{1}{2}$ *Seers* (240 cubical inches) of water, till it be dissolved. With this solution moisten the powders that are in the pot, and form them into a paste, which is to be divided in three equal parts. Put one of these portions in the remaining solution of *Soulu*, and heat it, but not so as to boil. Then put in the silk, prepared as before, and wet it thoroughly. Take it out, and add a little water, and a second portion of the paste. This being dissolved, soak in it the silk as before. Then put in the remainder of the paste with 18 *Seers* (1235 cubical inches) of water; and, replacing the silk, boil it for two hours. Then cool it, and having washed it in the tank, dry it either in the shade or sun, indifferently. This is a pretty colour, fixes well, and is cheaper than that of the *Lac*.

To dye their silk yellow, the *Puttuegars* use turmeric. For 3 *Seers* ($1\frac{934}{1000}$ lb.) of silk take 4 *Seers* ($2\frac{578}{1000}$ lb.) of turmeric, powdered and sifted; make it into a paste with water, adding 4 *Dudus* weight ($1\frac{619}{1000}$ oz.) of *Sesamum* oil. Divide the paste into three portions, one of which is to be put into a pot with 8 *Seers* (549 cubical inches) of warm water. In this immerse the silk prepared as before, and continue the operation exactly in the same manner as with the *Capili*

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paste. It must, however, be dried in the shade, and the colour then stands very well; which it would not do, were it dried in the sun.

The *Puttuegars* give their yellow silk to the *Niligaru*, who dye it with indigo. It is then washed by the *Puttuegars* in the infusion of tamarinds, and afterwards is of a fine green colour; which, if it be dried in the shade, is tolerably well fixed.

The *Niligaru* dye all the other colours; such as light and dark blue, sky blue, and purple. The silk is never dyed in the piece.

The red and orange-coloured silks are mostly in demand.

Weavers called *Cuttery*.

Some weavers called *Cuttery*, who pretend to be of the *Kshatriya* cast, manufacture exactly the same kinds of goods as the *Puttuegars*.

Sale for the goods made by the *Puttuegars* and *Cuttery*.

The whole of the demand for these goods, according to the account of the manufacturers, is in the country formerly belonging to *Tippoo*: *Seringapatam*, *Gubi*, *Nagara*, *Chatrakal*, and *Chin'-ráya-pattana*, are the principal marts. When the goods are in much demand, it is customary for the merchant to advance one half, or even the whole, of the price of the goods which he commissions; but when the demand is small, the manufacturers borrow money from the bankers at two per cent. a month, and make goods, which they sell to the merchants of the place. They never carry them to the public market. The silk is all imported, in the raw state, by the merchants of this place.

Wages of these silk weavers.

The master weavers keep from two to five servants, who are paid by the piece. Workmen that are employed on cotton cloth with silk borders make daily about a *Fanam*, or nearly 8*d.* Those who work in cloth consisting of silk entirely make rather less, or from $\frac{10}{12}$ ($6\frac{3}{4}$ pence) to $\frac{6}{8}$ (6 pence) of a *Fanam*, according to the fineness of the work. It is not usual for weavers of any kind in this country, except those of the *Whalliaru* cast, to employ part of their time in agriculture; but many persons of casts that ought to be weavers, are in fact farmers. The *Cuttery* are more affluent than the

Puttuegars, and these again are more wealthy than any other kind of weavers.

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Manufacture of coloured cotton with silk borders.

Another kind of manufacture is coloured cotton cloths of a thin texture, and with silk borders. It resembles one of the manufactures of the *Puttuegars*, called *Dutari Huvina*, but is coarser. It is entirely fitted for the different kinds of female dress; and is made of various lengths, from eight to sixteen cubits, according to the age and size of the wearers. In this way three different kinds of weavers are employed; the *Shaynagaru*, the *Canara Devangas*, and the *Teliga Devangas*. These people buy the thread at the public markets. The red thread comes mostly from *Advany*, *Balahari*, and other places near the *Krishna* river: the various shades of blue are dyed by the *Niligaru*.

Art of dyeing red with *Muddi*.

The weavers themselves dye part of the red thread with the *Muddi* root, which is that of two species of *Morinda;* the *Citrifolia* of Linnæus, and the *Ternifolia* described in my manuscripts. The colour is dark, but stands washing in cold water. In boiling, it fades. The following is the process used. The thread must be divided into parcels each weighing one *Seer* ($10\frac{314}{1000}$ oz.). For each parcel take $\frac{1}{4}$ *Seer* ($2\frac{578}{1000}$ oz.) of powdered *Soulu*, and dissolve it in 4 *Seers* ($274\frac{5}{10}$ cubical inches) of water. Put into the solution $\frac{1}{4}$ *Seer* of sheep's dung, and $\frac{1}{2}$ *Seer* ($5\frac{157}{1000}$ oz.) of *Sesamum* oil, and with the hand mix the whole well. Wet the parcel of thread in this mixture thoroughly, and let it hang up in the house all night to dry. Next day expose it on a rock to the sun; and during the four or five following days it must be dipped nine times in a solution of $\frac{1}{8}$ *Seer* ($1\frac{289}{1000}$ oz.) of *Soulu*, in one *Seer* (a little more than 68 cubical inches) of water. Between each immersion it must be dried in the sun. After this, the thread remains in the house ten days; it is then taken to a *tank*, and well washed by beating it on a stone, as is the usual practice of this country. When it has been dried, soak each parcel in a solution of two *Pagodas* weight ($1\frac{237}{1000}$ dram) of alum in one *Seer* of water, and then dry it again. Infuse one *Seer* measure

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($74\frac{9}{10}$ cubical inches) of powdered bark of *Muddi* root, in 4 *Seers* of cold water, and in this soak one parcel of thread; then throw into a large pot, the whole of the parcels that have been treated in a similar manner. Next day take them to a tank, beat them as usual, so as to wash them clean, and then dry them again in fresh infusions of *Muddi* powder. This must be daily repeated, till the colour is sufficiently strong; which, if the bark be from the roots of an old tree, will require six infusions; but nine infusions of bark from a young plant will be requisite.

Green dye for cotton.

These weavers dye cotton-thread green in the following manner. They send it to the *Niligaru*, who dye it *Mavi*, or a kind of sky blue. The weavers then wash it, and put it into two *Seers* ($137\frac{1}{4}$ cubical inches) of water, containing $\frac{1}{2}$ *Seer* ($5\frac{157}{1000}$ oz.) of powdered turmeric, five *Myrobalans* powdered, and the juice of ten limes. Here the thread is kept four hours, and the operation is finished. The colour is a fine green, but very perishable. It is said that the *Niligaru* have the power of fixing it; but they keep their art a profound secret.

Art of dyeing with *Cossumba* or *Carthamus*.

The *Devangas* dye cotton cloth of a fine red colour resembling that of the pomegranate flower, and called *Gulenari*. This is done with the *Cossumba*, or flowers of the *Carthamus tinctorius*. The same gives another red colour, called simply *Cossumba*. Neither of the colours are well fixed. The demand for the *Cossumba* dye being much greater than the country can supply, much of it is imported. This is always done in the form of powder, which powder is adulterated with the flowers of the *Yecada*, or *Asclepias gigantea;* on which account it is cheaper than the flowers produced in the neighbourhood. The powder is made by drying the flowers in the sun, and beating them in a mortar, and will not keep longer than one year; the flowers, if carefully packed in sacks, and well pressed, may be preserved for five years.

The *Cossumba* colour is given in the following manner. Take 15 *Sultany Seers* ($9\frac{1}{10}$ lb.) of pure *Cossumba* powder, and put it on a

cloth strainer. Clean it by pouring on water, and rubbing it with the hand, till the water runs through clear. The *Cossumba* is then to be spread on a blanket, and mixed with 15 *Dudus* weight ($6\frac{067}{1000}$ oz.) of *Suja cara*, and an equal weight of *Soulu*, both powdered. They are gathered together in the centre of the blanket, and trodden for an hour by a workman's feet. They are then put upon a cloth strainer, supported as usual by sticks at the corners; and water is poured on them, until it passes through the strainer without colour. This water is divided into three portions: that which came first, that which came in the middle of the operation, and that which came last; the first being of the strongest quality. Then take 60 good limes, or 100 bad ones, cut each into two pieces, beat them in a mortar, and strain their juice, through a cloth, into the pot containing the dye of the first quality. Then put a little water to the skins, beat them again, and strain off the water into the pot containing the second quality of the dye. Then add more water to the lime-skins, and having beat them, strain it into the dye of the worst quality. The cloth to be dyed, having been well washed, is put into this last pot, and boiled for an hour and a half. It is then dried in the sun, and dipped into the second quality of dye, but not boiled. It is then dried again, and afterwards kept half an hour in the dye of the first quality. At the end of this time, should the colour not be sufficiently strong, the cloth must be boiled in the dye. It is then dried, and the operation is finished. The cloth commonly dyed is for turbans; and a turban 60 cubit long requires 15 *Seers* of *Cossumba*.

The only difference, in the process for dyeing the *Gulenari*, is, that to the pot of the first quality, as prepared for dyeing *Cossumba*, is added half a *Seer* ($34\frac{1}{3}$ cubical inches) of a decoction of *Tundu* flowers (*Cedrella toona* Roxb: MSS.) prepared as follows. Take 24 *Dudus* weight ($9\frac{707}{1000}$ oz.) of dried *Tundu* flowers, beat them in a mortar, and boil them for half an hour in 2 *Seers* ($137\frac{1}{4}$ cubical inches) of water. Then strain the decoction through a cloth for use.

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The *Devangas* frequently make a very dark blue, which they call black, by means of the bark of the *Swamy*, or *Sweitenia febrifuga* Roxb: MSS. This colour is cheap; but its intensity leaves it on the first washing; whereas the very deep blue imparted by repeated immersions in indigo, and approaching near to black, is very high priced, and durable. It is the colour most esteemed by the natives, who call it black. The *Devangas* take cotton thread or cloth, that has been dyed blue by the *Niligaru* with indigo, and sprinkle it with a decoction of *Swamy* bark. This is made by powdering the dry bark, and boiling it for an hour and a half. While the cloth or thread is sprinkled, it must be moved with the hand, so as to imbibe the colour equally in every part.

Sale of dyed cotton goods, and condition of the weavers.

These weavers say, that they obtain advances from the merchants, and borrow money from the bankers, exactly on the same terms as the *Puttuegaru*. They sell their goods to merchants, or to private customers, and never carry them to the public markets. None of them follow any other business, than that of weaving, and many are in good circumstances. The *Shaynagaru* are the richest. The servants are paid by the piece, and make about 20 *Fanams* (13*s.* 5¼*d.*) a month.

White muslins.

A kind of weavers called *Bily mugga* by the Mussulmans, but in fact consisting of the casts called *Shaynagaru*, *Padma-shalay*, and *Samay-shalay*, weave many kinds of white muslins.

I. *Dutary*, striped and chequered muslins, called in *Bengal Durias*. They are from 28 to 32 cubits long, and from 2 to 1¼ broad; and, if commissioned, flowers of cotton, or gold thread, are frequently woven in them.

II. *Soda shilla*, or plain muslin, like the *Mulmuls* of *Bengal*. These are from 26 to 32 cubits in length, and 1½ to 2 cubits in breadth.

III. *Asto cumbi*, a cloth like the *Cossahs* of *Bengal*. They have sometimes striped or silver borders, and are always ornamented with silver at the ends. They are used by men to wrap round their shoulders.

IV. Turbans from 30 to 100 cubits in length, and from ½ to 1 cubit in width, and ornamented with silver and gold thread at the ends.

Each kind of cloth has several patterns, and each pattern is of three degrees of fineness, which, in the technical language of European merchants in India, are marked by the letters A. B. and C.

Sale of white muslins, and condition of the weavers.

These people say, that they receive advances from the merchants, and borrow money from the bankers, in the same manner as the *Puttuegars* do. Where the cloth is made on the weaver's own account, it is sold partly to merchants, and partly in the weekly markets. When a weaver receives advances, he cannot sell any cloth till his contract be fulfilled. Among the *Padma shalay* there are few servants employed; but all the males of a family live together, and work in the same house, very seldom engaging themselves to work out for hire. The *Samay shalay* keep more servants. The people of these two classes live better than those employed in agriculture. A man at fine work can gain a *Fanam* (rather more than 8*d.*) a day. At coarse work a man cannot make above 3*d.* a day. The servants live in their own houses; but, although paid by the piece, they are generally in debt to their masters, and are consequently bound in the same manner as the servants of the farmers. This circumstance is applicable to journeymen weavers of every kind.

Togotaru cotton cloth and weavers.

The *Togotaru* are a class of weavers that make a coarse, thick, white cotton cloth with red borders, which among the poorer class of inhabitants is used as the common waist-cloths of all ages and sexes. This kind of cloth goes by the name of the manufacturers who weave it, and is also of three degrees of fineness.

The same people make *Romals*, or handkerchiefs with red borders, from three to five cubits square, that are commonly used by the poor as a head dress. The pieces are about twenty cubits long, and are divided into a greater or smaller number of handkerchiefs, according to their width. They are also of three degrees of fineness.

The weavers of this class are poor, and say that they cannot afford

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to make the cloth on their own account. They in general receive the thread from the women in the neighbourhood, and work it up into cloth for hire. For weaving a piece that is worth 8 *Fanams*, or 5*s*. 4½*d*, they get 2½ *Fanams*, or 1*s*. 8*d*. This occupies a workman four or five days; so that his daily gains are from four to five pence. They never cultivate the ground.

Whalliaru weavers, and *Parcalla* cloth.

The *Whalliaru* make a coarse, white, strong cloth called *Parcalla*. It serves the poorer male inhabitants, throughout the country, as a covering for the upper parts of their bodies. The pieces are from 24 to 28 cubits long, and from 1½ to 1¾ broad, and as usual of three different degrees of fineness. Weavers of this kind live scattered in the villages, and frequently hire themselves out as day-labourers to farmers, or other persons who will give them employment.

Spinning.

At the weekly markets the cotton wool is bought up, in small quantities, by the poor women of all casts, except the *Bráhmans;* for these never spin, nor do their husbands ever plough the soil. The women of all other casts spin, and at the weekly markets sell to the weavers the thread that is not wanted for family use. The thread that is brought from *Balahari*, and other places toward the *Krishna*, is much coarser than that which the women here spin

Account of the manufactures by the cloth merchants.

Such is the account given me by the various weavers; but the cloth agents, who are all of a cast called *Nagarit*, say, that it is not customary to make advances for goods of an ordinary kind, unless the demand from a distance be very great. When this is the case, or when goods of an uncommonly high price are wanted, in order to enable the manufacturer to purchase the raw materials, one half of the value is advanced. The credit is for three months, and for this time there is no interest paid; but, if the goods are not then delivered, monthly interest is demanded at the rate of ¾ per cent. until the contract is fulfilled. The commission here on the purchase of goods is only two per cent. and the agent is answerable for all the sums advanced to the weavers. On confronting some of the

richer *Shaynagaru* with the *Nagarit*, they acknowledged that this statement was true.

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Manufactures, where sold.

The places from whence agents are at present employed to purchase cloths are *Nagara*, *Chatrakal*, *Seringapatam*, *Chin'-ráya-pattana*, *Sira*, *Madhugiri*, and *Devund-hully*. A small quantity of cotton and silk cloth for women's jackets goes to the lower *Carnatic*. This is the account of the *Nagarit;* but I have good reason to think, that a very large quantity of goods, especially of the silk manufacture called *Combawutties*, are sent to that country, and are much in request among the women of the rich *Bráhmans*. The *Nagarit* say, that the merchants, who import cotton, take away silk cloths for the dress of the *Bráhmans* of both sexes, and also blue and red cotton stuffs; but not in a quantity sufficient to repay the whole cotton. During the former government of the *Rája's* family much cloth went from this neighbourhood to *Tanjore*, *Negapatam*, and other parts of the southern *Carnatic:* but since that period, this commerce has been entirely at a stop.

The *Mangalore* merchants send hither for every kind of cloth. The dress of that country requires cloth only eight cubits long. The pieces intended for that market, have therefore a blank left in their middle. In *Hyder's* time there was a great exportation of cloth to *Calicut:* but the troubles in *Malabar* have put an entire stop to this branch of commerce.

Price of the different manufactures at *Bangalore*.

The accompanying price current of the different kinds of cloth made at *Bangalore* is only applicable to those made for common sale. Persons who wish for particularly fine goods may, by commissioning them, have them made at four times the highest price stated here, or at any intermediate value.

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AVERAGE PRICE CURRENT of the cloths manufactured for common sale at *Bangalore*.

	Cubits				Highest Price.				Lowest Price.			
	Length.		Width.									
	Greatest.	Smallest.	Greatest.	Smallest.	*Sultany Fanams.*	English Money.			*Sultany Fanams.*	English Money.		
Cloths made by the *Puttuegars* of silk entirely.						£.	s.	d.		£.	s.	d.
Puttay Shiray	17	14	2½	2	150	5	0	9	40	1	6	10¼
Ditto *Kirigay*	12	9	1¾	1¼	50	1	13	7	20	0	13	5
Ditto *Cupissa*	14½	- -	2⅛	2	120	4	0	7	35	1	3	6
Ditto *Dotra*	12	10	2½	2¼	110	3	13	10¾	30	1	0	1¾
Ditto *Bucha Khana*	7	6	1¾	1¼	40	1	6	10¼	10	0	6	8½
Ditto *Shalnama* large	6	- -	2½	- -	100	3	7	2	50	1	13	7
Ditto *Paggoo* full length	60	- -	¾	- -	60	2	0	3½	50	1	13	7
Cloths made by the *Puttuegars* of cotton and silk mixed, and with figured patterns.												
Shiray	17	14	2½	2	60	2	0	3½	15	0	10	1
Kirigay	12	9	1¾	1¼	40	1	6	10¼	12	0	8	0¾
Cupissa	14½	- -	2⅛	2	50	1	13	7	15	0	10	1
Plain white cotton cloths, with silk borders, made by the *Puttuegars*.												
Shiray	17	14	2½	2	50	1	13	7	8	0	5	4¼
Kirigay	12	9	1¾	1¼	20	0	13	5	3	0	2	0
Dotra	12	10	2½	2¼	50	1	13	7	8	0	5	4¼
Bucha Khana	7	6	1¾	1¼	30	1	0	1¾	5	0	3	4¼
Green cotton cloth with silk borders made by the *Puttuegars*.												
Hasseru Shiray	17	14	2½	2	20	0	13	5	15	0	10	1
Ditto *Kirigay*	12	9	1¾	1¼	10	0	6	8½	3	0	2	0
Ditto *Cupissa*	14½	- -	2⅛	2	30	1	0	1¾	8	0	5	4¼

	Cubits.				Highest Price.				Lowest Price.			
	Length.		Width.									
	Greatest.	Smallest.	Greatest.	Smallest.	*Sultany Fanams.*	English Money.			*Sultany Fanams.*	English Money.		
Coloured cotton cloth with silk borders made by the *Devangas.*						£.	s.	d.		£.	s.	d.
Shiray - - - - - - -	17	14	2½	2	50	1	13	7	8	0	5	4¼
Kirigay - - - - - - -	12	9	1¼	1¼	20	0	13	5	3	0	2	0
Cupissa - - - - - - -	14½	- -	2⅛	2	30	1	0	1¼	8	0	5	4¼
Cotton cloth made by the *Shalay* and *Shaynagaru.*												
Dutary - - - - - - -	32	28	2	1¼	20	0	13	5	10	0	6	8½
Sada-Shilla - - - - - -	32	26	2	1½	20	0	13	5	10	0	6	8½
Asto-cumbi - - - - - -	- -	- -	- -	- -	20	0	13	5	10	0	6	8½
Bily-Paggoo - - - - - -	60	- -	¼	- -	30	1	0	1¼	10	0	6	8½
Cotton cloth with red borders made by the *Togataru.*												
Dotra - - - - - - -	12	10	2½	2¼	12	0	8	0¼	7	0	4	8¼
Shiray - - - - - - -	17	14	2½	2	13	0	8	8½	6	0	4	0
Romal - - - - - - -	5	3	5	3	10	0	6	8½	4	0	2	8
Coarse cloth wrought by the *Whalliaru*, and called												
Parcala - - - - - - -	28	24	1¼	1½	15	0	10	1	5	0	3	4¼

Encouragement required for the weavers of *Bangalore*.

The weavers of *Bangalore* seem to me to be a very ingenious class of men, and, with encouragement, to be capable of making very rich, fine, elegant cloths of any kind that may be in demand: but, having been chiefly accustomed to work goods for the use of the court at *Seringapatam*, they must now labour under great disadvantages: for it never can be expected, that the court of *Mysore* should equal that of *Seringapatam*, nor will the English officers ever demand the native goods, so much as the Mussulman *Sirdars* did. The

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manufactures of this place can never, therefore, be expected to equal what they were in *Hyder's* reign, unless some foreign market can be found for the goods. *Purnea*, very desirous of the re-establishment of this city, has forwarded by me the musters of cotton and silk cloth that accompany this account, with a request, that they may be presented in his name to the Marquis Wellesley: and I beg leave to recommend, that the attention of the board of trade may be directed to them, with a view of forming some commercial arrangements that may assist in restoring a country which has suffered so much.

Silk manufacture.

The silk manufacture seems especially favourable for a country so far from the sea, and from navigable rivers: as long carriage, on such a valuable article, is of little importance. At present all the raw material is imported: but I see no reason why it might not be raised in *Mysore* to great advantage. *Tippoo* had commenced a trial, but his arbitrary measures were little calculated to ensure success. Some of the mulberry trees, however, that remain in his gardens, show how well the plant agrees with this climate. It is true, that the experiments hitherto tried below the *Ghats* have not been favourable; but much resolution and patience are always required to introduce any new article of cultivation; and I suspect that the climate here, owing to its being more temperate, will be found more favourable than that of the lower *Carnatic*.

Duties on Weavers.

There is a small duty levied here on every loom; and it is judiciously diminished to those who keep many, in order to encourage men of wealth to employ their capital in that way. A man, who has one loom, pays annually 3¼ *Fanams* (2*s.* 6¼*d.*); two looms pay 5 *Fanams* (3*s.* 4¼*d.*); and a man who keeps more than two looms, pays only for each two *Fanams*, or 1*s.* 4*d.* All shop-keepers pay similar trifling duties.

Printers of cotton cloths.

There is here a set of people called *Rungaru*, who act as tailors, cloth-printers, and dyers. Their printed cloths are very coarse, and the art among them is in a very imperfect state. The only two

colours that they can give in printing, are red, and black. Their process is as follows:

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The cloth that is to be printed is kept all night in a mixture of sheep's dung and water. Next morning it is washed, and then bleached the whole day in the sun, having water occasionally. At night it is again put into a mixture of sheep's dung and water, to which is added a little quicklime. Next morning it is washed again, and then put into a cold infusion of *Arulay Myrobalans, (Terminalia Arula,* Buch. MSS.) mixed with some gum of the *Dinduga* tree, *(Andersonia Panchmoum,* Roxb. MSS) . The quantity of *Myrobalans* for 12 cubits of cloth is 6 *Dudus* weight ($2\frac{426}{1000}$ ounces), and of gum two *Dudus* weight ($12\frac{943}{1000}$ drams). The cloth, after being thoroughly wet in this, is taken out, and dried in the sun. It is then folded, placed on a smooth plank, and well beaten with a stick, which serves instead of mangling.

The *Mordant* for the red dye is made as follows: Dissolve in one *Seer* (68 cubical inches) of hot water, 6 *Dudus* weight ($2\frac{426}{1000}$ ounces) of alum, and 12 *Dudus* weight ($4\frac{852}{1000}$ ounces) of *Dinduga* gum. This *Mordant* is poured into a cavity that is made in a block of timber, and covered with four folds of country blanket well moistened with the *Dinduga* mucilage. The wooden blocks for printing are moistened with the *Mordant,* by applying their surfaces to the blankets. The cloth to be printed is laid on a table covered with four folds of old cloth, and the blocks are applied, and pressed down by the hand. It is then kept for eight or ten days.

If the printer wishes to add black to the pattern, the cloth must be again printed with the following *Mordant.* Take 5 *Seers* ($3\frac{033}{1000}$ lb.) of iron dross, and 5 *Seers* of old iron, put them into a pot containing rather more than two ale quarts ($2\frac{1}{2}$ *Seers*) of hot *Kanji,* or decoction of rice; then add half a *Seer* ($4\frac{852}{1000}$ ounces) of *Sugar-Jagory,* and keep it six or seven days. Next add half a *Seer* of *Dinduga* gum rubbed up with a little *Ghee* (boiled butter), and allow it all night to dissolve; the *Mordant* is then fit for use, and is applied

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in the same manner as the other. After this the cloth requires only four days to dry.

After the *Mordants* have been dried on it, the cloth must be taken to the tank, washed very well, by beating it on a stone for an hour, and then dried. In order to give it the colour, put a piece, that has received the *Mordants*, into a pot, with 20 *Seers* (about five gallons) of water of the kind called here salt, one half *Seer* of *Popli* bark, and one *Dudu* weight ($6\frac{471}{1000}$ drams) of castor oil; then boil it for two hours, all the while carefully stirring the whole. The cloth is then taken out, and dried in the sun. At night it is soaked in a mixture of sheep's dung and water, next morning washed, and then bleached all day. At night it is again put into the mixture of sheep's dung and water, and next day is again bleached. The operation is then finished by starching it with *Kanji*. The black is a fixed colour, but the red is perishable.

Patunga dye. With the *Patunga* wood these *Rungaru* dye cotton cloth of a red colour, which is bright, but does not stand washing. It is said, that the people of *Madras* have the art of fixing it. The process used by the *Rungaru* is as follows: Prepare the cloth by soaking each piece in a *Seer* of water, containing six *Dudus* weight of powdered *Myrobalans*. Then dip it into two or three *Seers* (about two quarts) of a decoction of *Patunga* wood, in which have been dissolved two *Dudus* weight of alum. Then dry the cloth in the sun. The operation must be repeated four or five times, until the colour be deep enough. The decoction of *Patunga* is made as follows: Beat two *Seers* ($1\frac{213}{1000}$ lb.) of *Patunga* wood, put it into a pot with 20 *Seers* (about 5 gallons) of water, and boil for six hours.

Indigo dyers. The *Niligaru* are another class of dyers, of the same cast with the potmakers, and derive their name from their dyeing with the *Nila* or indigo. The whole of this dye that is used here, comes from the lower *Carnatic*, or northern *Circars*. In order to make a vat, the *Niligaru* take ten *Seers* ($6\frac{066}{1000}$ lb.) of indigo, ground with a little water to a fine powder; put it into a pot capable of containing 50 *Seers*

measure (or a little more than 12 ale gallons); and add a decoction of *Tagashay Bija*, or seed of the *Cassia Tora*, which is made as follows. Take 4 *Seers* measure ($\frac{113}{1000}$ Winchester gallon) of the seed, and boil it for 6 hours in four or five *Seers* of water (about an ale gallon). The boiled seed, as well as the decoction, must be put into the vat; and then there must be added 10 *Seers* ($6\frac{067}{1000}$ lb.) of powdered *Soulu*, or impure soda, 12 *Seers* ($7\frac{28}{100}$ lb.) of quicklime, and two *Seers* of the ley of pot-ash (137 cubical inches). The whole is then stirred with a stick, and the mouth of the pot is covered up. Every evening and morning, for four days, three *Seers* (206 cubical inches) more of the ley must be added; and in the last portion must be put about the size of an apple of quicklime. The vat now rests for three days; when four or five *Seers* of boiling water must be added to it, and the vat is then ready for dyeing. The ley of pot-ash is prepared as follows: Burn to ashes the branches of the *Calli*, *(Euphorbium Tirucalli)*, or of the *Utrayena (Achyranthes muricata)*: of these ashes put 2 *Seers* ($1\frac{213}{1000}$ lb.) into a pot, in the bottom of which there is a small hole. The hole is covered with a small inverted cup, and that by some rice husks or chaff. Above these are put the ashes, and on them are poured by degrees 25 *Seers*, or about 6 ale gallons of water, which filters through the hole in the bottom of the pot, and forms the ley. It must be observed, that the water used by the *Niligaru* is always either that called here salt, or that which is found in places abounding with calcarious *Tuffa*.

The indigo vat having been prepared, an estimate is formed of the number of *Seers* weight of cotton that it will dye. For every *Seer* weight of cotton thread pass a *Seer* measure of water through the pot containing the ashes, and in this weak ley dip the *Seer* of cotton; wash it well, and then wring out the water. The solution of indigo is then divided into five equal parts. The thread is dipped, by *Seers* weight at a time, into these pots, till the colour in each is exhausted; and what does not obtain a proper colour in the first, after being dried, receives repeated dips, until the colour arrives at the

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required intensity. The solution of indigo is kept for a month, and every night a little lime water is added; this enables it to give some more colour, which next day is again exhausted by dyeing some more cotton. The colour given by one dip is called *Mavi,* and is a sky blue; that which is given by five dips in a strong pot, is of an intense colour nearly approaching to black, and is in fact called black by the natives, among whom it is in great esteem.

From the weavers, the *Niligaru* receive cotton, and silk thread dyed yellow with turmeric, and return it to them of a green colour, which it obtains by a dip in a weak pot.

Indian hemp, *Goni,* or *Crotalaria juncea.*

At *Bangalore,* as well as in all the neighbouring country, *Goni* is a considerable article of manufacture. It is a coarse, but very strong sack-cloth, from 18 to 22 cubits in length, and from ½ to ¾ of a cubit broad; and is made from the *Janupa,* or *Crotalaria juncea.* It is divided into three kinds, which differ in value according to their strength, and to the closeness of the fabric. The same people, who are a particular cast of men, cultivate the plant, and carry on the manufacture, until the *Goni* be fit for sale; the price of the hemp cannot therefore be ascertained, as it is not sold in that state. The *Goni-maker* hires from some farmer as much high ground as he thinks will raise a quantity of *Janupa* sufficient to employ his family to manufacture in one year. The soil ought to be red or black, like the best kinds used for the cultivation of *Ragy.* It is allowed no manure; and the seed is sown broad-cast on the ground, without any previous cultivation, at the season when the rains become what the natives call male, that is to say, when they become heavy. After being sown, the field is ploughed twice, once lengthwise, and once across; but receives no farther cultivation. At other times the *Janupa* is cultivated on rice-ground in the dry season; but it must then be watered from a canal, or reservoir. It requires four months to ripen, which is known by the seeds having come to full maturity. After being cut down, it is spread out to the sun, and dried. The seed is then beaten out by striking the pods with a stick. After

this, the stems are tied up in large bundles, about two fathoms in circumference, and are preserved in stacks, or under sheds. The bundles are taken out as wanted, and put in the water, at which time their bands are cut, and the stems being opened out, are kept down to the bottom by stones or mud. According to circumstances, they require to be kept in the water from six to eight days. They are known to be ready, when the bark separates easily from the pith. It is then taken out of the water, and a man, taking it up by handfuls, beats them on the ground, and occasionally washes them until they be clean; and at the same time picks out with his hand the remainder of the pith, until nothing except the bark be left. This is then dried, and being taken up by handfuls, is beaten with a stick to separate and clean the fibres. The hemp is then completely ready, and is spun into thread on a spindle, both by the men and women. The men alone weave it, and perform this labour in the open air with a very rude loom.

Leather.

Leather is tanned here by a class of people esteemed of very low cast, and called *Madigaru*.

Goat and sheep skins tanning.

To dress the raw hides of sheep or goats, the *Madigaru* in the first place wash them clean, and then rub each with the fourth part of a kind of soft paste, made of 6 *Dudus* weight of the milky juice of the *Yecada (Asclepias gigantea)*, about 6 *Dudus* weight ($2\frac{426}{1000}$ ounces) of salt (muriate of soda), and twelve *Dudus* weight of *Ragy Sanguty*, or pudding of the *Cynosurus coracanus*, with a sufficient quantity of water. This paste is rubbed on the hairy side, and the skins are then exposed for three days to the sun; after which they are washed with water, beating them well on a stone, as is usual in this country. This takes off the hair. Then powder 2 *Seers* ($1\frac{213}{1000}$ lb.) of *Arulay Myrobalans*, and put them and one skin into a pot with 3 or 4 *Seers* measure of hot water, where it is to remain for three days. The skin is then to be washed and dried.

Black skins.

This tanned skin is dyed black as follows: take of old iron, and of the dross of iron forges, each a handful; of plantain and lime-

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skins, each five or six; put them into a pot with some *Ragy kanji*, or decoction of *Ragy*, and let them stand for eight days. Then rub the liquor on the skins, which immediately become black.

Red skins.

These skins may be dyed red by the following process: Take of ungarbled *Lac* 2 *Dudus* weight (about 13 drams), of *Suja cara*, or fine soda, 1 *Dudu* weight, and of *Lodu* bark 2 *Dudus* weight. Having taken the sticks from the *Lac*, and powdered the soda and bark, boil them all together in a *Seer* of water (68$\frac{5}{8}$ cubical inches) for 1$\frac{1}{2}$ hour. Rub the skin, after it has been freed from the hair as before mentioned, with this decoction; and then put it into the pot with the *Myrobalans* and water for three days. This is a good colour, and for many purposes the skins are well dressed.

Neat hides.

The hides of oxen and buffaloes are dressed as follows: For each skin take 2 *Seers* (1$\frac{213}{1000}$ lb.) of quick lime, and 5 or 6 *Seers* measure (about 1$\frac{1}{3}$ ale gallon) of water; and in this mixture keep the skins for eight days, and rub off the hair. Then for each skin take ten *Seers*, by weight, (about 6 lb.) of the unpeeled sticks of the *Tayngadu (Cassia auriculata)*, and 10 *Seers* measure of water (about 2$\frac{1}{2}$ ale gallons), and in this infusion keep the skins for four days. For an equal length of time, add the same quantity of *Tayngadu* and water. Then wash, and dry the skins in the sun, stretching them out with pegs. This leather is very bad.

Oil makers.

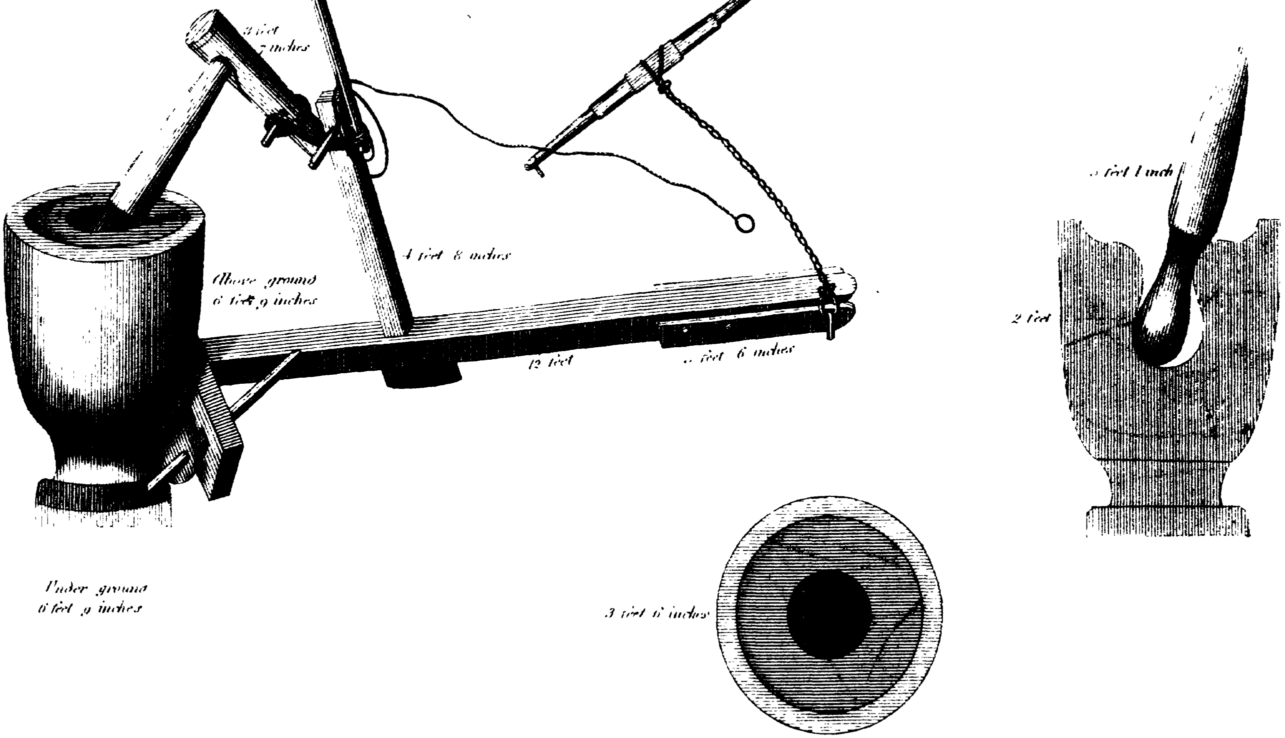
The oil makers at *Bangalore* are a very considerable class of people, and are of the kind that use two bullocks in their mill, of which a plan is given (Figure 24). The mortar is a block of granite. This class of people are called *Jotyphanada*, or *Jotynagarada Ganagaru*. They express the following kinds of oil: *Wull'-Ellu*, *Huts'-Ellu*, *Harulu*, *Cobri*, *Ipay*, and *Hoingay*.

Oil of *Sesamum*.

The *Wull'-Ellu* oil is expressed from two varieties, or species of *Sesamum* seed, called here *Surugana* and *Cari Ellus*. They are the same with the *Wullay* and *Phulagana Ellus* of *Seringapatam*. The first gives the least oil; but for the table it is esteemed the best of any in the country; the price, however, of the two kinds is the

Oil-mill at Bangalore

Fig. 24.



same. The mill receives at one time about seventy *Seers* measure ($2\frac{42}{100}$ Winchester bushels) of *Sesamum* seed; and, in the course of grinding, ten *Cucha Seers* measure of water ($2\frac{78}{100}$ ale quarts) are gradually added. The grinding continues for six hours, when the farinaceous parts of the seed, and the water, form a cake; and this having been removed, the oil is found clean and pure in the bottom of the mortar, from whence it is taken by a cup. Seventy *Pucka Seers* ($2\frac{42}{100}$ Winchester bushels) of *Surugana*, or 65 *Seers* of *Cari-Ellu* seed ($2\frac{256}{1000}$ Winchester bushels), give 2 *Cucha Maunds* (rather more than $5\frac{1}{2}$ ale gallons) of oil. The mill requires the labour of two men and four oxen, and grinds twice a day. The oxen are fed entirely on straw, and are allowed none of the cake; which is sometimes dressed with greens and fruits into *Curry*, and at others given to milch cattle.

Huts'-Ellu oil.

The *Huts'-Ellu* is managed exactly in the same manner as the *Sesamum*. The seventy *Seers* measure require a little more water than the other *Ellu*, and give 65 *Seers* of oil (or a little more than $4\frac{1}{2}$ gallons). This also is used for the table. The cake is never used for *Curry*, but is commonly given to milch cattle.

Castor oil.

The *Harulu*, or castor oil, is made indifferently from either the large or small varieties of the *Ricinus*. It is the common lamp oil of the country, and is also used in medicine. What is made by boiling, as described at *Seringapatam* (p. 109.) is only for family use; all that is made for sale, is expressed in the mill. To form the cake, seventy *Seers* of the seed require only five *Seers*, *cucha* measure ($1\frac{39}{100}$ ale quarts), of water, and give 60 *Seers* ($4\frac{17}{100}$ ale gallons) of oil; which, after being taken out of the mill, must be boiled for half an hour, and then strained through a cloth. The cake is used as fewel.

Cobri, or Coco-nut oil.

Cobri oil is that made from the dried kernel of the coco-nut, which is called *Cobri*. This oil is chiefly used for anointing the hair and skin. Cakes are also fried in it, and it is sometimes used for the lamp. The mill receives 6 *Maunds* weight of the *Cobri* (almost

93 lb.), and 11 *Cucha Seers* measure of water (a little more than 3 ale quarts). This produces three *Maunds* (about 7$\frac{8}{10}$ ale gallons of oil. The natives eat the cake dressed in various ways.

Ipay, or *Bassia* oil.

The *Ipay* oil, made from the fruit of the *Bassia longifolia*, is used for the lamps burned before the gods, being esteemed of a better quality than that of the *Ricinus*. The mill takes 70 *Seers* measure, and the seed requires to be moistened with 12 *Cucha Seers* (3$\frac{1}{2}$ ale quarts) of tamarind water, in which 2 *Seers* of tamarinds have been infused. The produce is 70 *Seers* (4$\frac{365}{1000}$ ale gallons) of oil. The cake is used as soap to wash oil out of the hair of those who anoint themselves.

Hoingay oil.

The *Hoingay* oil, produced from the seed of the *Robinia mitis*, is used for the lamp; but it consumes very quickly. It is also used externally in many diseases. Take 70 *Seers*, *Pucca* measure, of the seed freed from the pods, add 4 *Cucha Seers* measure of water (1$\frac{11}{100}$ ale quart), and beat them in a mortar into a paste. Then tread the paste with the feet; and, having kept it for two or three days, dry it in the sun. It is then put into the mill with one *Cucha Seer* (19$\frac{6}{10}$ cubical inches) of water. It produces 40 *Seers* (2$\frac{1}{4}$ ale gallons) of oil. For fewel, the cake is mixed with cow-dung.

The English weight, to which all the native weights are reduced, is the pound avoirdupois.

Calendar.

The only year in use above the *Ghats* is the *Chandra-manam*, or lunar year; it is that by which, among the *Bráhmans*, all religious ceremonies are performed. The current year, as extracted from the almanack here, is as follows. At *Bangalore* this is reckoned to be the year 4893 of the *Kali yugam*, and 1722d of the era of *Sáliváhanam*, which is in universal use in the peninsula. It must be observed, that in all my accounts of seasons, I use the European days, as they correspond with the *Karnataca* days in this year; but the year of *Karnata* being lunar, this correspondence does not commonly take place; and there is in some years a difference of eleven days between what is stated here, and the days that actually correspond with each other in the two almanacs.

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European Months.	Karnata Months.	Holidays.	European Months.	Karnata Months.	Holidays.
1800	1722		1800	1722	
Mar. 26	*Chaitra* - 1	*Agádi.*	May 14	*Vaisáka* - 21	
27	2		15	22	
28	3		16	23	
29	4		17	24	
30	5		18	25	
31	6		19	26	
April 1	7		20	27	
2	8		21	28	
3	9		22	29	
4	10		23	30	*Amávásya.*
5	11		24	*Jyaishta* - 1	
6	12		25	2	
7	13		26	3	
8	14		27	4	
9	15	*Chaitra Paurnimá.*	28	5	
10	16	*Sankranti.*	29	6	
11	17		30	7	
12	18		31	8	
13	19		June 1	9	
14	20		2	10	
15	21		3	11	
16	22		4	12	
17	24		5	13	
18	25		6	14	
19	26		7	15	
20	27		8	16	
21	29		9	17	
22	30	*Amávásya.*	10	18	
23	*Vaisáka* - 1		11	20	
24	1		12	21	*Sankránti.*
25	2		13	22	
26	3	*Achatadiga Gauri*	14	23	
27	4		15	24	
28	5		16	25	
29	6		17	26	
30	7		18	27	
May 1	8		19	27	
2	9		20	28	
3	10		21	29	
4	11		22	30	*Amávásya.*
5	12		23	*Ashádha* - 1	
6	13		24	2	
7	14		25	3	
8	15	*Vyása Paurnimá.*	26	4	
9	16		27	5	
10	17	*Sankranti.*	28	6	
11	18		29	7	
12	19		30	8	
13	20		July 1	9	

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European Months.	*Karnata* Months.	Holidays.	European Months.	*Karnata* Months.	Holidays.
1800	1722		1800	1722	
July 2	*Ashúdha* - 10	*Scyna ékádasi.*	Aug 17	*Srávana* - 27	
		Chaturmasyam.	18	28	
3	11	*Gopadma-aritam*	19	29	
		Lukshya-vrata-dipiam.	20	30	*Amavasya.*
		Prathama ékádasi.	21	*Bhadrapada* 1	
4	13		22	2	
5	14		23	3	*Swarna Gauri vrata.*
6	15	*Vyása pújá.*	24	4	*Ganésa vrata*
7	16		25	5	*Rishi panchami.*
8	17		26	6	
9	18		27	7	
10	19		28	9	*Gaja Lakshmi vrata.*
11	20		29	10	
12	21		30	11	
13	22	*Sankranti,* sun returns	31	12	
14	23	[south.	Sept. 1	13	
15	24		2	14	*Ananta chaturdasi.*
16	25		3	15	*Uma Maheswara vratam.*
17	26		4	16	Beginning of general fast.
18	27		5	17	*Bhagavari vratam.*
19	28		6	18	
20	29		7	19	
21	30	*Dipastambha-vrata.*	8	20	
22	*Srávana* - 1		9	21	
23	2		10	22	
24	3		11	23	
25	4	*Nagachetrusti.*	12	24	
26	5	*Garuda panchami.*	13	25	
27	6		14	26	*Sankranti.*
28	7		15	27	
29	8		16	28	
30	9		17	29	
31	10		18	30	General fast in honour of
Aug. 1	11	*Varamaka Lakshmi vrata.*	19	*Aswayuja* or	[deceased parents ends.
2	12			*Aswaja* - 1	*Navarátri.*
3	13		20	2	
4	14	*Sravana Paurnima.*	21	3	*Mahasura Gauri vratam.*
5	16		22	4	
6	17		23	5	*Kanaka Lakshmi vrata.*
7	18		24	6	*Guhya Gauri vrata.*
8	19		25	7	*Saraswati puja.*
9	20		26	8	*Durga astami.*
10	21		27	9	*Mana Navami.*
11	22		28	9	
12	23	*Gokul ashtami.*	29	10	*Visya Dasami* or *Dana.*
13	24		30	12	[*puja vrata.*
14	24		Oct. 1	13	
15	25	*Sankranti.*	2	14	
16	26		3	15	*Kanmudi vrata,* an eclipse.

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European Months.	Karnata Months.	Holidays.	European Months.	Karnata Months.	Holidays.
1800.	1722.		1800.	1722.	
Oct. 4	*Aswayuja* - 16		Nov. 21	*Márgasírsha* 5	*Bhadrí Gaurí.*
5	17		22	6	*Sampada srishti.*
6	18		23	7	
7	19		24	8	
8	20		25	9	
9	21		26	10	
10	22		27	11	
11	23		28	12	
12	24	*Naraka chaturdasi.*	29	13	
13	25		30	14	
14	26	*Sankránti.*	Dec. 1	15	
15	27		2	16	
16	28		3	17	
17	29		4	18	
18	30	*Dípávali Amávásya.*	5	19	
19	*Kartika* - 1		6	20	
20	2	[*Gaurí.*	7	21	
21	3	*Dadhi Gaurí* and *Giraki*	8	22	
22	5	*Apanga Lilita Gaurí.*	9	23	
23	6		10	24	
24	7		11	25	
25	8		12	26	
26	9		13	27	
27	10		14	28	*Sankránti.*
28	11		15	29	
29	12	*Uttana dwadasi* and *Si-*	16	30	*Amávásya.*
30	13	[*rabdi vratam.*	17	*Paushya* - - 1	
31	14		18	2	
Nov. 1	15	*Dhatri pújá.*	19	4	
2	16		20	5	
3	17		21	6	*Tulava srishti.*
4	18		22	7	
5	19		23	8	
6	20		24	9	
7	21		25	10	
8	22		26	11	
9	22		27	12	
10	23		28	13	
11	24		29	14	
12	25		30	15	
13	26		31	15	
14	28	*Sankránti.*	1801.		
15	29		Jan. 1	16	
16	30	*Amávásya*	2	17	
17	*Márgasírsha* 1		3	18	
18	2	*Tantrini Gaurí.*	4	19	
19	3	*Rambha Gaurí.*	5	20	
20	4		6	21	

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European Months.	*Karnata* Months.	Holidays.	European Months.	*Karnata* Months.	Holidays.
1801.	1722.		1801.	1722.	
Jan. 7	*Paushya* - 22		Feb. 10	*Magha* - 27	
8	23		11	28	
9	24		12	29	*Sivarátri.*
10	25		13	30	*Amávásya.*
11	26	*Sankránti.*	14	*Phalguna* - 1	
12	28		15	3	
13	29	*Savitra Gaurí.*	16	4	
14	30	*Amávásya.*	17	5	
15	*Magha* - 1		18	6	
16	2		19	7	
17	3		20	7	
18	4		21	8	
19	5		22	9	
20	6		23	10	
21	7	*Ratri saptami.*	24	11	
22	8		25	12	
23	9		26	13	
24	10		27	14	
25	11		28	15	*Káma Dhanma.*
26	12		Mar. 1	16	
27	13		2	17	
28	14		3	18	
29	15	*Cunti Gaurí vrata.*	4	19	
30	16		5	20	
31	17		6	21	
Feb. 1	18		7	22	
2	19		8	23	
3	20		9	24	
4	21		10	26	
5	22		11	27	
6	23		12	28	
7	24		13	29	
8	25		14	30	*Amávásya.*
9	26	*Sankránti.*			

Although, in common reckoning, the day begins at sun-rise, yet this is by no means the case in the *Chandramánam* almanac. Some days last only a few hours, and others continue for almost double the natural length; so that no one, without consulting the *Panchánga*, or almanac-keeper, knows when he is to perform the ceremonies of religion. What increases the difficulty is, that some days are doubled, and some days altogether omitted, in order to bring some feasts, celebrated on certain days of the month, to happen at a

proper time of the moon, and also in order to cut off six superfluous days, which twelve months of thirty days would give more than a year of twelve lunations. Every thirtieth month one intercalary moon is added, in order to remove the difference between the lunar and solar years. As the former is the only one in use, and is varying continually, none of the farmers, without consulting the *Panchánga*, know the season for performing the operations of agriculture.

Panchángas.

These *Panchángas* are poor ignorant *Bráhmans*, who get almanacs from some one skilled in astronomy. This person marks the days, which correspond with the times in the solar year, that usually produce changes in the weather, and states them to be under the influence of such and such conjunctions of stars, male, female, and neuter; and every one knows the tendency of these conjunctions to produce certain changes in the weather. The poor *Panchángas* are as much in the dark as their neighbours, and actually believe that the year consists of 360 days, six of which are lost, nobody can tell how. As for the skill in astrology by which the learned are supposed to be able to foretel the seasons, I have never met with even a *Vaidika Bráhman*, that doubted its existence. It is, however, looked upon as a common science, as not having any thing miraculous in it, nor being communicated to its professors by divine favour.

Astrology.

Panchángas and *Puróhitas.*

The office of *Panchánga* in every part of this country is hereditary, and is always held by a *Bráhman*, who acts as *Puróhita*, or family priest, to all the persons of pure descent in the town or village. In *Bengal*, *Bráhmans* who have lost cast act as *Puróhitas* for the low or impure casts; but both here, and in the lower *Carnatic*, such an office would be considered as too degrading for even the most reprobate of the sacred order. The office of *Puróhita* consists in reading at certain ceremonies, such as marriages, births, funerals, the building of a new house, or the like, what are called *Mantrams*, and *Sástrams*. *Mantrams* are certain fixed forms of prayer, or invocations of the deity; and the high dignity of the *Bráhmans* arises

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from the power which certain *Mantrams*, pronounced by them, are believed to possess. For instance, by a proper *Mantram*, the deity may be removed from any inspired image into a pot of holy water; and the image having been ornamented by profane hands, the deity may be again transferred back from the pot of water. *Sástrams* are portions of the writings esteemed sacred; and of which certain parts are appointed to be read on particular occasions, such as I have above mentioned.

Customs of various casts.

I assembled at different times the chief persons of some of the most conspicuous casts at *Bangalore*, and procured from them the following account of their customs.

Banijigaru.

The *Banijigas*, or *Banijigaru*, are in this country a very numerous class, and are of three kinds, the *Pancham*, the *Jaina*, and the *Telinga Banijigaru*.

Pancham Banijigaru.

The *Pancham Banijigaru* are by the Mussulmans called *Lingait*, as being the chief persons of the sect, who wear, round their necks, a silver box containing an image of *Siva* in shape of the *Linga*, under which form only he is ever worshipped. From this circumstance they are also called *Sivabhactaru*, and *Lingabuntaru;* but in this country there are many other lower casts, who wear the same badge of religion. The *Pancham Banijigaru* are also the heads of the right hand side. They admit of no distinction of cast among themselves, except that arising from a dedication to the service of God; but they do not admit of any proselytes from other *Hindu* races; nor do they intermarry with any of the lower casts that wear the *Linga*. The *Bráhmans* allege, that they are *Súdras*; but this, in general, they earnestly deny. The manner in which the *Bráhmans* reason with them is this: You are, say they, neither *Bráhman*, *Kshátri*, nor *Vaisya*. If therefore you are not *Súdras*, you must belong to one of the low, or impure casts. Many of the *Lingait*, rather than endure such a terrible degradation, are induced to acknowledge themselves of the *Súdra* cast. It must however be observed, that *Vánija*, from which their name is probably derived,

is said to be a *Sanscrit* word, signifying any person of the *Vaisya* cast who follows trade.

The *Pancham Banijigaru* are divided into a number of tribes, which seem to derive their names from certain places where they were formerly settled. Two persons of different tribes never intermarry; but all persons of the cast can eat together, and the whole are under the jurisdiction of the head-man *(Pedda Chitty)*, of whatever tribe he may be. This office is, as usual, hereditary; and the person who enjoys it is exempted by government from house-rent, and from one half of the customs on his goods. He finds merchants coming from a distance in lodging and warehouses, settles disputes among his clan, and punishes them for misdemeanours. In general, he is supported by the officers of government, who punish such of his followers as do not give him the customary obedience. His judicial authority, however, is not arbitrary. All his proceedings are open; and he cannot act contrary to the advice of his council, which consists of all the old and respectable men of the cast.

Besides this division into tribes, which arises from the names of places, there seem to be other distinctions among the *Linga Banijigas;* some are called *Aray*, that is, *Marattahs*, and some *Teliga*, that is, *Telingas;* and neither of these ever intermarry with each other, or with those who are of the *Karnata* nation. Some persons allege, that *Pancham*, the title commonly given to the whole, is only the name of a division; and that there are also *Linga Banijigas* called *Budugulu, Lalgunderu*, and *Turcanaru*.

The *Pancham Banijigaru* are chiefly traders. They may however follow any profession, except such as belong to the most disgraced casts; and this exception seems rather to arise from a wish to keep themselves respectable, than from any positive law. Like all other worshippers of *Siva*, they bury the dead, and never offer sacrifices. They do not purchase their wives, of whom they may marry as many as they please. The women are not confined, but cannot marry a second husband; and after the signs of puberty appear, a girl is

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no longer marriageable. Adultery is very rare; that is to say, among the women; for among the people of this country the term is never applied to the infidelity of married men. The *Pancham Banijigas* never eat animal food, nor take any intoxicating substance. They cannot eat, except when the sun shines; of course, in cloudy days they are under the necessity of fasting.

Like most other *Hindu* casts, the *Pancham Banijigas* consist of a portion that follow worldly affairs, and another that dedicate themselves entirely to what they call the service of the gods; that is to say, idleness, meditation, prayer, abstinence, and the mortification of the passions. Among this cast, these consecrated persons are called *Jangamas, Einaru,* or *Wodearu.* Any *Pancham Banijiga,* who is qualified by his education and manners, may become a *Jangama;* but the descendants of a *Jangama* never betake themselves to honest industry. They always subsist upon charity; and most of them wander about with a great number of small bells tied to their legs and arms, in order to give the inhabitants of the villages notice of their presence; so that they may come out to invite the holy men to their houses, or to bestow charity. Many others live about the *Matas,* or colleges of the *Gurus* of the cast, and act as their servants.

The *Gurus* or *Swamalus* of the *Pancham Banijigaru* are *Sannyásis;* that is, men who have *forsaken all;* and they possess an absolute authority in all religious matters, among which is included the chastity of the women. Of these *Gurus,* or *Sannyásis,* there are four, that are called *thrones,* and whose *Matams* are called *Baly-hully; Hujiny,* near *Nagara; Sri-shela,* near *Nundyal;* and *Canelly,* near *Bangaluru.* These *thrones* seem to be independent of each other; and their occupants, for the time being, are supposed to be actual incarnations of *Siva.* When a *Guru* leaves this world, and is reunited to *Siva* in heaven, he is in general succeeded by a person of his own nomination. The *Guru* generally educates four or five children of his own family, with a view of choosing the fittest of them for his

successor. These pupils are taken into the *Matams* at five or six years of age, and, until they attain their thirteenth year, are called *Mari;* after which they are not by name distinguished from the common *Jangamas;* but if they choose to marry, they must relinquish all hopes of becoming a *Guru.* The pupil is made a *Guru* (sage), or an incarnation of God, by receiving from his master a particular *Upadésa;* and in case of a *Guru's* dying without having disclosed this awful secret, the other *Gurus* assemble, appoint the most promising pupil to succeed, and at the same time deliver to him the *Upadésa* of his rank. The *Guru,* when he pleases, may marry; but he is thereby degraded from being a portion of the divinity, and from his power; and no one has yet been found so desirous of marriage, as to relinquish these pre-eminencies.

There are many inferior *Matams* which are occupied by *Sannyásis,* called *Mahántina.* These originally received an *Upadésa* from some of the four chief *Gurus,* and were sent to distant parts to manage the concerns of their superiors; but, though they all acknowledge the superiority of the four *Gurus,* yet they educate pupils in the same manner; and from among these appoint their successor, by teaching him their *Upadésa.* These pupils, till they arrive at the age of puberty, are called *Putta Dévaru.* The *Mahántina* having sent deputies to different places, even these have now assumed a separate jurisdiction, and educate their own successors.

The *Mahántina* attend at marriages and funerals, and punish all persons of the cast, for every kind of offence against religion, by ordering every good man to avoid communication with the delinquent. This excommunication is not removed, till, by the intercession of friends, and the most humiliating requests of the offender, he obtains pardon by paying a fine under the name of charity. On this occasion, the *Mahántina* bestow some consecrated water and victuals, which wipe away the offence. The *Gurus* occasionally visit the different *Mahántina* throughout the country; but it is the

Guru only of the *Matam* from whence the *Mahántina* originally came, that possesses any jurisdiction over the inferior.

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The *Pancham Banijigaru* worship only *Siva*, his wife, and his sons: but they allege, that *Brahmá* and *Vishnu* are the same with *Siva*. They suppose, that their sect has existed from the beginning of the world; but that at the time of *Bejala Rája*, who reigned about 720 years ago at *Kalyána Pattana*, the kings and most of the people were *Jainas*. At this time *Baswana*, the supposed son of a *Bráhman*, became prime minister of the *Rája*, and restored the worship of *Siva*. Many of the *Jainas* were converted, and their descendants now form the *Jaina Banijigaru*, who, although they have the same religion with the *Pancham*, are never admitted to the priesthood, nor to intermarry with the original sect. *Bejala Rája* having been put to death by *Jagadíva* and *Bomanna*, two servants of *Baswana*, that minister reigned in his stead; and then promulgated the law which this sect now follow; and this, with an account of all the actions of *Baswana*, are contained in a book called *Baswana Purána*; which was written by a *Bráhman* called *Bhimakavi*, at the desire of *Baswana*. The sect are in possession of another book of great authority. It consists of six *Sástrams* written by a *Jangama* named *Nijaguna*, who, in the conversation which he had with an image of *Siva* at a temple on a hill near *Ellanduru*, received the necessary instruction. After he had finished the book, this *Jangama* did not die; but the image, opening, received him into its substance. It continues ever since to be held in great estimation. These books are open to the vulgar; but it is said, that the *Jangamas* have some books which are kept secret.

Jaina Banijigaru.

Customs of the *Teliga Banijigaru.*

The *Teliga Banijigaru* derive their name from having originally come from the *Telinga* country, which, in the dialect of *Karnata*, is called *Teliga*. They all retain the *Telinga* language, and allege that all *Banijigas* are descended from a person called *Prithivi Mala-chitty*. By his first wife, who was of the *Vishnu* sect, he had the ancestors

of their cast; and by his second wife, who worshipped *Iswara*, or *Siva*, he had the ancestors of the *Lingabantaru*. They are evidently an inferior people, and more ignorant than the other *Banijigas*, owing probably to their being under the *Bráhmans*, who exclude their followers from a share of their learning. In the *Teliga* language they are called *Balija;* whence, probably, is derived the name *Buljewar*, which is bestowed by the Mussulmans on all *Banijigas*.

The true *Telinga Banijigas* are merchants and traders of all kinds, farmers, and farmers servants, and porters for the transportation of goods or baggage; but never artists, nor mechanics. They are divided into a number of tribes, all of which can eat together; but one tribe never marries with another. The chiefs of the *Lingabantas* have a civil jurisdiction over the *Teliga Banijigaru;* but in order to settle matters relating to their own cast, they choose the man whom they judge to be most capable; and in the absence of their *Gurus*, this man calls an assembly of the elders, and settles the affair.

Their *Gurus* are all hereditary chiefs of the *Sri Vaishnavam Bráhmans*, and never punish any delinquent without the advice of a council of elders. In their visits, these *Gurus* live in the temples, and assemble the people in order to collect their contributions, and to bestow *Upadésa* and *Chacrántikam* on such as choose to receive them. The *Panchánga* acts as their *Puróhita*, attending at births, marriages, and funerals, and on each occasion receives charity.

Among the *Teliga Banijigaru* the custom of *Dáséri* prevails. A *Dáséri* is a man dedicated to the service of the *Tripathi Vishnu;* that is to say, who subsists by begging in the name of that idol. When a sick man is in great danger, he frequently vows, if he recovers, to take *Dáséri*, or to make one of his sons assume that profession; and ever afterwards the eldest son of the family must follow that business, but the younger sons follow some industrious employment. The *Dáséri* may marry, and may be a rich man; as the younger

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branches of his family live in his house, and cultivate the ground, or carry on trade; but he himself wanders about, and collects grain, and small money, from those who are charitable. They get by rote a prayer in *Telinga* poetry, which they constantly bawl out in the streets, and endeavour farther to attract notice by blowing on a conch. It seems to be only the *Súdras* of the *Vishnu* sect that follow this idle life, and few of them are able either to read or write.

The *Telinga Banijigaru* are acknowledged to be true *Súdras*, and they allow this to be the case. A few of them learn to read and write accompts, but they never attempt any higher kind of learning. They eat sheep, goats, hogs, fowls, and fish, and may use *Bang;* but they ought not to drink spirituous liquors. They bury the dead, and the women formerly used to bury themselves alive with their deceased husbands; but this custom has fallen into disuse. They pray to *Vishnu*, and all the gods of his family; and also to *Dharma Rája*, an inferior god of a beneficent nature; but with the *Bráhmans* he is not an object of worship. In case of danger, they offer bloody sacrifices to several destructive spirits; such as *Marima*, *Putalima*, *Mutialima*, and *Gungoma*, which is a lump of mud made into a sort of temporary image. The *Bráhmans* of this country abhor this kind of worship, and call all these gods of the vulgar evil spirits, *Saktis*, or ministers of *Siva*. They never offer sacrifices at the temples of these deities, and much less ever act as their *Pújáris*. Influenced, however, by superstition, although they condemn the practice, they in sickness occasionally send a small offering of fruit or money to these deities; but, being ashamed to do it publickly, the present is generally conveyed by some child, who may be supposed to have made the offering by mistake. The small temples of these deities are very numerous, and the *Pújáris* are in general of the impure casts. I am inclined indeed to believe, that they are the original gods of the country; and that these impure casts are the remains of the rude tribes that occupied the country before the origin of the *Bráhmans*, or other sects, that introduced

forms of worship more complicated, and more favourable to the priesthood. CHAPTER IV. June 22, &c.

Many of the people who burn lime are a kind of low *Teliga Banijigaru*, as they can eat in the houses of that class; but their native language is the *Karnataka*, or *Canarese;* and the two tribes do not intermarry. They are divided into several families, and no man marries out of his own; but they can all eat together. They have hereditary chiefs, who settle disputes relating to cast; but in civil affairs they are subject to the chiefs of the *Pancham Banijigaru.* They do not wear the *Linga*, yet they consider as their *Guru* the *Nidamavudy Swámalu*, who is a *Mahántina Einaru*, and lives in the *Bala-pura* district. They never eat with the sect of *Siva;* and use animal-food, and *Bang;* but are not allowed to drink spirituous liquors. They bury the dead. They are allowed a plurality of wives, who are not confined, and are so industrious that they are looked upon as a support to their husbands. They are never divorced, except for adultery; and if their infidelity has not been with a man of a very low cast, the parties are frequently reconciled by the *Swámalu*, who makes them eat together some consecrated victuals, which, with some holy water, puts an end to all differences. None of them can either read or write. They never become *Dásèri.* The god of their cast is *Vencaty Rámana*, or the *Tripathi Vishnu:* but they pray also to *Dhárma Rája*, and offer sacrifices to *Marima*, and other destructive spirits.

Another inferior kind of *Teliga Banijigas* are the *Goni* makers. They will willingly eat in the houses of that cast; but these will not return the compliment. They will also eat the meat prepared by a *Pancham Banijiga.* They have their own hereditary chiefs, who are as ignorant as their followers, none of them being able either to read or write. Some of them are farmers, and some are small traders, which does not effect any difference in cast. They do not wear the *Linga*, and their *Guru* is one of the hereditary chiefs of the *Sri Vaishnavam Bráhmans*, whose family title is *Tata Achárya.*

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The present *Guru*, named *Ráma Achárlu*, lives here. Those who are natives of this country bury their dead, and the *Goni* makers of the lower *Carnatic* burn theirs; but this does not prevent the two from intermarrying. They are allowed a plurality of wives. Without danger of losing cast they can eat hogs, fowls, mutton, and fish, and can drink spirituous liquors.

Customs of the *Déváñgas*.

The *Déváñgas* are a set of weavers, consisting of two nations, *Karnata*, and *Telinga*.

Karnata Déváñgas.

The *Karnata* or *Canara Déváñgas* in this country all wear the *Linga*, but are a distinct cast from the *Pancham Banijigas*, with whom they neither eat nor intermarry. The same is the case between them and the *Teliga Déváñgas*. Their *Guru* is *Cari Baswa-uppa*, who, from the place of his residence, is commonly called the *Nidamavudy Swámalu*. The *Déváñgas* pretend that he is totally independent of the *Gurus* of the *Linga Banijagaru*; but I have reason to think that this is a vain piece of pride, and that he is one of the *Mahantina* before mentioned. The *Guru* sends *Jangamas* to all the villages where *Déváñgas* reside, and receives contributions under the name of charity. Owing to a dispute about the burning of the body of the *Rája's* mother, this priest incurred the heavy displeasure of *Tippoo*, and was under the necessity of flying to the dominions of the *Nabob* of *Arcot*, and still remains there at *Trinomaly*. The learning is chiefly confined to the *Swámalu* and his pupils. Most of the *Jangamas* are acknowledged, even by their followers, to be very ignorant. The sect have a book called *Déváñga Purána*, which every one may read. It was written by *Déváñga Muni*, the common ancestor of the race. The *Jangamas* read the *Baswana Purána*, and possess many books that the *Déváñgas* are not permitted to see. Out of these they repeat portions to the laity at the annual ceremony performed in memory of their deceased parents, at births, and at funerals. These portions are committed to memory by the *Jangamas*, it not being lawful for the laity even to look at the books; but as these are written in the vulgar language, and of course are

understood by every one, the *Dévángas* are laughed at by their neighbours for considering them as of any value. The *Panchánga* attends at marriages, and reads a *Mantram* in *Sanskrit;* which, being unintelligible, is very highly valued. The knowledge of the laity is confined to the keeping of accompts and writing letters. The *Gurus* and *Jangamas* possess the same authority over the *Dévangas*, as they do over the *Pancham Banijigas.*

The proper god of the cast is *Iswara* or *Siva*, and his wife and family; especially his servant the *Baswa*, and his son *Ganésa*, who has particular authority over the loom, and, when his worship is neglected, is apt to make it go wrong.

The hereditary chiefs of the *Canara Dévángas* are called *Ijyamána.* With the assistance of a council of the elders, these chiefs take cognizance of all offences against the ceremonies of cast. They reprimand for small offences; for those of a higher nature, excommunicate; and, in cases of great importance, send the accused person to the *Swámalu* for his decision. The chiefs and councils endeavour to settle all civil disputes between members of the cast, first by admonition; then by excommunication of those who are unreasonable; and finally by applying to the officers of government, who generally enforce the decrees of the *Ijyamánas.*

The whole of the *Canara Dévángas* can intermarry. They are allowed a plurality of wives, which they purchase from their parents, paying from 4 to 16 *Pagodas* (*1l. 6s. 2¼d.—5l. 7s. 5½d.*) for each, according to their circumstances. The wives are not shut up, nor are they ever divorced except for adultery. They eat no animal food, nor use any intoxicating substance, except as a medicine. They bury the dead, and believe that after death good men are united to God; bad men suffer transmigration. The *Nidamavudy Swámalu* is looked upon as the same with *Iswara*, and even a common *Jangama* is considered as a portion of the deity.

Teliga Dévángas.

The *Teliga Dévángas* retain their native *Telinga* language, but are divided into two sects; of whom one worships *Vishnu*, and the other

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Iswara; but both sects intermarry, the wife always adopting the religion of the husband.

The *Teliga Dévángas* of the sect of *Siva* do not wear the *Linga,* although they consider *Cari Baswa-uppa* as their *Guru.* This priest admonishes them to wash their heads, and to pray regularly to *Iswara;* and, as usual, requires from them contributions. He has a small due on every marriage. The *Panchánga* reads *Mantrams* at births, marriages, and funerals; at the *Amávásya,* or last day of the lunar month, and at the *Tithi,* or day on which their parents died; on both of which days a fast, in commemoration of their deceased parents, is observed by the greater part of the *Hindu* race. On these occasions the *Jangamas* attend, but merely to receive charity. Concerning a future life, they have similar opinions with those who wear the *Linga.* They offer bloody sacrifices to the *Saktis.* They bury the dead; and the custom of the widow burying herself alive with her husband's body was once prevalent among them, but has now become obsolete. Girls, after the age of puberty, continue to be marriageable. A man is allowed to take many wives, but is not permitted to shut them up, nor to divorce them for any cause except adultery. The men confine their learning to the being able to read and write accompts. They eat fowls, fish, hogs, sheep, and goats, but account it unlawful to drink spirituous liquors.

The *Teliga Dévángas* of the *Vishnu* sect are followers of the *Sri Vaishnavam Bráhmans,* and are acknowledged by them to be *Súdras.*

The hereditary chiefs, or *Ijyamánas,* of all the *Dévángas* are the same; each man in the place submitting to the authority of the chief of the sect that is most numerous.

Customs of the *Shaynagaru.*

The *Shaynagas,* or *Shaynagaru,* form a very numerous and wealthy class of weavers. They are divided into two nations, *Telinga,* and *Canara;* but of the former, there are none in this neighbourhood.

Although by far the greater part of the *Canara Shaynagas* are settled below the *Ghats,* in countries where the *Tamul* language is spoken; and though all these who are settled now in this neigh-

bourhood came up from the lower *Carnatic* about eighty or a hundred years ago; yet the whole cast retain the language of *Karnata* as their native tongue. This confirms the truth of a tradition prevalent among them, of their having all originally gone down from this country; but they can assign no date, nor any reason for such an emigration. They are divided into two classes; one dedicated to Religion, and called *Einaru, Jangamas,* or *Wodearu;* the other follow lay professions. All the weavers can intermarry; but they are never honoured by an intermarriage with the *Einaru,* nor are they ever admitted into that sacred order. They wear the *Lingam,* and consider their priests as portions of the deity. They bury the dead. They can eat in the house of a *Pancham Banijiga;* but the two casts never intermarry.

The hereditary chiefs of the *Canara Shaynagas* are called *Ijyamána,* and, with a council of elders, possess the sole cognizance of transgressions against the rules of cast, as well as of civil disputes; for the power of the *Jangamas* is confined to admonition. They do not shut up their women; and are not allowed to take a second wife, unless the first dies, or has no children. When a man marries his first wife, he must give her father 101 *Fanams,* or *3l. 7s. 10d.*; for a second he must give 131 *Fanams,* or 4*l.* 7*s.* 11¾*d.* No divorce can take place, except for adultery on the side of the woman; the wife in India having no remedy for her husband's infidelity except her tongue; and in case of her being too free in the use of that weapon, the men very frequently repress it by a beating.

The weavers learn to read and write accompts, and letters on business; but in this country these are reckoned very mean accomplishments. A plain composition in prose, and consisting merely of common sense, is looked upon as a kind of reading beneath the dignity of a man of learning, who ought always to compose in poetry; and the more obscure he renders his meaning by allegories, the better. The books containing the doctrines of the sect are confined entirely to the *Einaru,* whose duty it is to explain them

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to the laymen. The chief book in use among them is called the *Márkandiya Purána;* and they do not receive as canonical the *Baswana Purána.*

Among the *Einaru* of the *Shaynagas* are several high priests called *Putta Dévarus* or *Swámalus.* These are all *Sannyasis,* and seem to be independent of each other. Those which are known to the people here, are, *Sankara Dévaru,* who lives at *Changamau* near *Trinomaly; Bhuságara Swámi,* at *Narasingha pura,* near *Arnee; Gangádhara Swámi,* at *Kunji; Sénavéra Dévaru,* at *Chinamangala* near *Trinomaly;* and *Gurusiddha Dévaru,* at *Trinomaly:* all which places are in the lower *Carnatic.* These *Putta Dévaru* have their *Matams* at the places above mentioned; but travel occasionally through the country occupied by the weavers, collecting the contributions of the charitable, bestowing advice on the adults, and the *Linga* on the children, who receive it with some particular ceremonies. Each of the *Putta Dévarus* educates a boy, who is of the sacred class by birth, who is intended to be the successor of his master, and who is called *Mari.* The *Putta Dévaru,* if he chooses, may deliver over his office to the *Mari,* and take a wife; in which case he is degraded to the rank of a common *Einaru.* This is frequently done, as my informants were obliged to confess; though they did so with great reluctance; for they were unwilling to disgrace their *Swámalus* before their neighbours, who consider celibacy as a much more honourable state than marriage. The married *Einaru* have their houses near the different *Matams.* Some of them live with the *Sannyásis,* and are their menial servants; but the greater part of them, that are able to undergo the fatigue, wander about to collect charity for their support. In the lower *Carnatic* they are said to sell glass rings, and other trinkets.

The people of this cast, with whom I conversed, were either so ignorant, or so unwilling to speak, on the subject of their religion, that I cannot depend much on what they said. The *Jangamas* of the *Pancham Banijigaru* allege, that the *Swámalus* of the *Shaynagas*

are of their sect: and the *Mahántina*, no doubt, attend at the funerals and other public ceremonies of the *Shaynagas;* but those allege that this is merely for the purpose of begging, and that they perform no part of the ceremony. The *Pancháŋga* reads *Mantrams* at marriages and births, and receives the usual fees.

Customs of the *Coramas*.

The *Coramas,* or *Coramaru,* are a set of people, considered by the *Bráhmans* as of an impure or mixed breed. They make baskets, and trade in grain and salt to a considerable extent; but none of them can read or write. They live, in general, in small camps of moveable huts, which are sometimes stationary near large towns; but they are often in a state of daily motion, while the people are following their mercantile concerns. The *Coramas* consist of four families, *Maydraguta, Cavadiru, Maynapatru,* and *Satipatru.* These are analogous to the *Gótrams* of the *Bráhmans;* for a man and woman of the same family never intermarry, being considered as too nearly allied by kindred. The men are allowed a plurality of wives, and purchase them from their parents. The agreement is made for a certain number of *Fanams,* which are to be paid by instalments, as they can be procured by the young woman's industry; for the women of this cast are very diligent in spinning, and carrying on petty traffic. When the bargain has been made, the bridegroom provides four sheep, and some country rum, and gives a feast to the cast; concluding the ceremony by wrapping a piece of new cloth round his bride. Should a man's wife prove unfaithful, he generally contents himself with giving her a beating, as she is too valuable to be parted with on slight grounds; but, if he chooses, she may be divorced. In this case, he must assemble the cast to a feast, where he publicly declares his resolution; and the woman is then at liberty to marry any person that she chooses, who is willing to take her.

The *Coramas* do not follow nor employ the *Bráhmans;* nor have they any priests, or sacred order. When in distress, they chiefly invoke *Vencaty Rámana,* the *Tripathi Vishnu,* and vow small offer-

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ings of money to his temple, should they escape. They frequently go into the woods, and sacrifice fowls, pigs, goats, and sheep, to *Muni*, who is a male deity, and is said by the *Bráhmans* to be a servant of *Iswara;* but of this circumstance the *Coramas* profess ignorance. They, as usual, eat the sacrifices. They have no images, nor do they worship any. Once in two or three years the *Coramas* of a village make a collection among themselves, and purchase a brass pot, in which they put five branches of the *Melia azadarichta,* and a coco-nut. This is covered with flowers, and sprinkled with sandal-wood water. It is kept in a small temporary shed for three days, during which time the people feast and drink, sacrificing lambs and fowls to *Marima,* the daughter of *Siva.* At the end of the three days they throw the pot into the water.

Customs of the *Panchálas.*

The *Panchálas,* or *Panchálaru,* a name corrupted by the Mussulmans into *Panshcal,* are a cast that follow five different trades, goldsmiths, carpenters, blacksmiths, masons, and coppersmiths. These occupations do not occasion any difference of cast; the son of a man of any one of the trades may, if he pleases, follow any other, and all of them can eat together and intermarry. Each trade, it is true, has a head-man; but the whole are subject to one hereditary chief, who is here a goldsmith. He is the leader of the left hand side; and at present the dispute between him and the chief of the *Banijigas* runs so high, that government have been obliged to part the town into two divisions. In the one of these the right hand side is not allowed to perform any ceremonies, nor to go in procession; and the other division is kept equally sacred from the intrusions of their adversaries. The head-man of the goldsmiths has a similar jurisdiction with other chiefs of casts; and, with the assistance of his council, can levy fines, which are given to the goddess *Káli;* that is to say, to her priest.

The *Panchálaru* are divided into two sects; one worshipping *Siva,* the other adoring *Vishnu;* but this does not produce any schism; the two parties eating together, and intermarrying; and when this

happens, the wife adopts the religion of her husband. *Káli* is considered as the proper deity of the cast; but receives no bloody sacrifices from her votaries. Both sects are prohibited from animal food, from spirituous liquors, from divorce (except in case of adultery), and from marrying a girl that has arrived at the age of puberty. The *Bráhmans* read *Mantrams* at the births, marriages, and funerals of both sects; and no distinction is made by either, whether the *Bráhman* be a worshipper of *Siva*, or of *Vishnu*.

The most numerous and richest of the *Panchálas* belong to the sect of *Siva*, and wear the *Linga;* but they have nothing in common with the *Pancham Banijigas*, and in fact are their most bitter enemies. This sect bury the dead.

The *Panchálas* who worship *Vishnu* are called *Bagota*, and have among them a family dedicated to religion. The eldest son of this family always succeeds to the dignity of *Guru* on the death of his father; the other male branches of the family are supported by the contributions of the sect, and pass their time in devotion and study. The women of the family intermarry with the working men of the cast. The *Guru* is named *Vipur Vencaty Achárya; Vipur* being his name, and *Vencaty Achárya* his title. He lives at *Wadiga-palla*, which is twelve *Cosses* from *Bangalore*, and in the *Doda Bala-pura* district He travels about among his followers, receiving their contributions, and bestowing *Upadésa*, and *Chakrántikam*, or *Mudradárana* as it is called in the *Sanskrit* language.

Customs of the *Madigas*.

The *Madigas*, or *Madigaru*, are looked upon as a very low cast. They dress hides, make shoes, and some of them cultivate the ground, acting as servants to the farmers. They are divided into small tribes of ten or twelve houses, and intermarry with the daughters of these houses only, in order to be certain of the purity of their race; of which they seem to be as fond, as those casts that are esteemed infinitely superior in rank. Some of the richer among them take two or more wives; but this is not common, as a girl's father requires from 30 to 80 *Fanams* (1*l.* 0*s.* 1$\frac{3}{4}$*d.*—2*l.* 13*s.* 8$\frac{3}{4}$*d.*).

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They never divorce their wives for any crime, except adultery. They eat carrion, and all manner of animal food, and avowedly drink spirituous liquors. Their religious worship seems to be exactly the same with that of the *Coramaru;* but they have a priestly tribe, who never intermarry with the laity, who live entirely on their contributions, and are called *Jambu.* There is a *Matam* of *Jambu* at *Cuddapa;* and the office of high priest there is hereditary. This person takes frequent rounds through the country, collecting money, and admonishing his followers. I have never seen any of the *Jambu;* and, if they have any learning among them, they keep it entirely to themselves, as none of the laity can either read or write.

The *Madigaru,* who by the English of *Madras* are called *Siclars,* have no hereditary chiefs; but, in case of any fault being committed by a person of the cast, the elders assemble, and punish him according to custom.

Customs of the *Rungaru.*

The *Rungaru* are a tribe admitted to be of the *Súdra* cast. They are taylors, and printers of calico cloths. They have hereditary chiefs, with the usual jurisdiction, and follow the rules of their cast. Their *Guru* is an hereditary chief of the *Sri Vaishnavam,* who resides at *Seringapatam.* He punishes obstinate offenders, and bestows *Upadésa;* and in return takes their contributions. He does not favour this cast by giving them *Chakrántikam.*

Customs of the *Jotyphanada.*

The *Jotyphanada,* or *Jotynagarada Ganagaru,* are a kind of oil-makers, who deal largely in that commodity, and have two oxen in their mills. They pretend to be of the *Bheri,* or *Nagarada* sect of the *Vaisya* cast; but this is not admitted by either the *Bheri* or *Bráhmans.* They are a real *Karnataca* tribe. Two families here wear the *Linga,* and are not admitted either to eat or intermarry with the others, who are all followers of one of the hereditary chiefs of the *Sri Vaishnavam Bráhmans,* who lives here, and is called *Nullary Chakravarti.* He bestows on them *Upadésa,* and sometimes *Chakrántikam,* but that rarely. When they marry, he gives them a string or thread, to be worn over the shoulder. This should be

given to the real *Vaisya* only; but a relaxation is made in their favour, as they pay for the badge; and the preservation of the privileges of the lower casts is looked upon as a matter of very little importance. The *Guru* comes sometimes in person, and at others sends his agents, to levy the dues which are paid at marriages, and to receive the casual charity that is given according to the ability and disposition of his followers.

These oil-makers offer sacrifices to the *Saktis*, or destructive powers; making vows to do so, when they are in sickness or distress. Some of them take *Dáséri;* and their descendants ever afterwards follow the same manner of living, and refuse to intermarry with the industrious part of the cast, whom they consider as their inferiors. Some of the oil-makers burn, and some bury the dead. There have been instances, in the memory of man, of some of their widows having burned themselves along with the bodies of their husbands; but it is a very rare occurrence. Their wives can be divorced for adultery only, and are not shut up, although the men are allowed a plurality of women. They eat no animal food, nor is it lawful for them to drink spirituous liquors. They possess no learning, farther than being able to read and write accompts; and a few poems in the *Andray*, or poetical language of *Telingana*, which the *Dáséri* commit to memory.

Customs of the *Chitrakaru.*

The people who, in the language of *Karnata*, are called *Chitrakaru*, are commonly better known by the Mussulman appellation *Jinigar*, or *Jiligar*. They make chests, trunks, scrutoires, beds, and *palankeens*, paint houses, draw pictures of the gods and of women, gild, act as tailors, make gold thread, and sword scabbards, turn wood, and bind books. They never cultivate the ground, nor act as merchants. They pretend to be of the *Kshátriya* cast; and their *Guru*, in consequence, indulges them with a thread like that of the *Bráhmans;* but their pretensions to high rank are entirely disavowed by all other casts. They have among them some rudiments of learning,

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In the *Brahmanda Purána*, which is the book that they consider as appropriated to their cast, it is related, they say, that their ancestors, on account of some injury done to the *Bráhmans*, were condemned to follow their present mechanical occupations. They are divided into two sects; one worshipping *Siva*, and the other *Vishnu*: but this division produces no difference of cast, as they can all eat and marry together, the wife, as usual, adopting the religion of her husband. The worshippers of *Siva* do not wear the *Linga*, but are followers of the *Smartal Bráhmans*. A *Vaidika Bráhman* residing here bestows the thread and *Upadésa*, and attends at births, marriages, and funerals, which are performed on the pile, and are sometimes accompanied by the sacrifice of a wife. Those who worship *Vishnu* are followers of the *Sri Vaishnavam Bráhmans*. Neither division of these people eat animal food, nor drink spirituous liquors. They are allowed plurality of women, but do not confine them. Like all the other tribes of this country, however, they do not willingly admit any person of a different race into the inner apartments of their houses; especially if he be of a cast that they consider as inferior to their own; persons of their own tribe, and those whom they consider as of higher rank, can go into every part of their house, except the kitchen. The circumstances which seem chiefly to add dignity to a cast are, its being restricted from the pleasures of the world, especially those of the table; the following no useful employment; and the being dedicated to what they call piety and learning. Almost every man endeavours, as much as possible, to assume at least the external appearance of these qualifications; and in the people of this country a hypocritical cant is a remarkable feature. Even young men of active professions, when talking on business, will frequently turn up their eyes to heaven, and make pious ejaculations, attended with heavy sighs.

Customs of the *Shalay*.

The *Shalay* are a cast of weavers, divided into two distinct tribes, that never intermarry, and have separate hereditary chiefs. They

are of *Telinga* origin, and in their families retain that language: According to tradition, they have been in this country for six generations.

Samay Shalay.

The *Samay Shalay* wear the *Linga*, and of course are worshippers of *Iswara*, and the gods of his family. They reject the worship of the *Saktis*, or destructive powers. Their *Gurus* are the *Einaru* of the *Pancham Banijigas*, with which cast the *Samay Shalay* can eat, but they cannot intermarry. When their *Guru* visits the town, each *Shalay* of this sect must present him with two *Fanams* (1*s.* 4*d.*); and when a *Samay Shalay* waits on the *Guru* at the *Matam*, he must make an offering of ten *Fanams*, (6*s.* 8½*d.*). The *Guru* does not give *Upadésa;* but, in place of it, bestows the *Linga*. In case of the *Guru's* absence, this may be done by any *Einaru*. The *Einaru* attends at births, marriages, funerals, and on the occasion of building a new house. The *Panchánga* attends at marriages to read the *Mantrams*, or service proper for the ceremony, and receives the usual fees. On these occasions, the *Einaru* washes the bridegroom's feet, and gives him some consecrated victuals. They bury the dead, and the widow is sometimes buried alive at the same time, but not in the same grave with the deceased husband. Widows cannot marry a second time, as is the case throughout India with females of any cast above those that are reckoned impure. The men are allowed a plurality of wives; but, except for adultery, can neither confine nor divorce them. They cannot legally eat animal food, nor drink spirituous liquors. The laymen are permitted to read several *Puránas;* such as the *Baswa Purána*, which gives an account of the laws of their religion: and the *Shalayswara Purána*, which is extracted from a book called the *Bráhmanda Purána*, and contains the rules of their particular sect, as the original work contains the rules of every sect whatever.

Padma Shalay.

The worshippers of *Vishnu*, among this class of weavers, are called *Padma Shalay*, and give the following account of their origin. The whole *Shalay* formerly wore the *Linga;* but a house having been

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possessed by a devil, and this sect having been called upon to cast him out, all their prayers were of no avail. At length ten persons, having thrown aside the *Linga*, and offered up their supplications to *Vishnu*, they succeeded in expelling the enemy; and ever afterwards followed the worship of this god, in which they have been imitated by many of their brethren. The descendants of these men, who are called *Sadanạ Ashorlu*, or the celebrated heroes, never work; and having dedicated themselves to the service of god, live upon the charity of the industrious part of the cast, with whom they disdain to intermarry.

The *Guru* of the *Padma Shalay* is *Tata Achárya*, one of the hereditary chiefs of the *Sri Vaishnavam Bráhmans*. He lives at *Doda Bala-pura*, and bestows *Upadésa* and *Chakrántikam*. He has here a deputy, a *Vaidika Bráhman*, who attends at births, marriages, and burials. Widows are never buried alive. The *Padma Shalay* are allowed a plurality of wives; but cannot confine their women, nor divorce them, except for adultery. They cannot legally eat animal food, nor drink spirituous liquors; but are permitted to use *Ganja*, or hemp, which the English in India usually call *Bang*. Some among them are able to read poetry, and have a book called *Márkandiya Purána*, which is also followed by several sects that wear the *Linga*, and is said to have been written by a *Rishi* named *Markanda*.

Customs of the *Comatigas*.

The *Comatigas* say, that they are the only true *Vaisya*, which is the third in rank of the pure casts; and they pretend, that now they are next in rank to the *Bráhmans*, as the second pure cast has become extinct. In both these pretensions they are supported by all the *Bráhmans* who are not desirous of flattering some *Rája* that pretends to be a *Kshatri*. They are found thinly scattered in every part of India, and are not prevented from eating in common, or from intermarriage, by any difference of nation or sect. A *Comatiga* coming from *Kási* or *Benares*, on being examined, and found to be acquainted with certain customs peculiar to the cast, and which are kept secret, is received here into all families, and may marry any

of their women. They deal in cloth, and all kinds of merchandize, especially money and jewels; but are not allowed to sell spirituous liquors, nor any intoxicating substance; nor do they ever cultivate the ground, or follow any mechanical profession. They have hereditary chiefs, called *Pedda Chitties;* and the chief of each town or district is totally independent of the others. When a town is very large, the chief, for the parts that are remote from his house, appoints inferior officers, who settle trivial disputes. These chiefs possess the usual jurisdiction, and enjoy more than common immunities, for they pay nothing to government. They can in no case act without the assistance of all the elders in the place. The *Comatigas* are not allowed to take animal food, nor any thing that will intoxicate. Polygamy is allowed to the men, and the women are not divorced for any cause, except adultery. In this country they are not confined; but in the northern parts of *Hindostan* the *Comatigas* follow the example of their neighbours, and shut up their wives. Many of this cast read books composed in poetry; that which is considered as peculiarly belonging to it, is called *Vaisya Purána,* and is imagined to have been composed by the goddess *Kanyaká Paraméswarí,* which is one of the names of the wife of *Iswara.* They all burn the dead, and sometimes the widow accompanies on the pile her departed husband. The women are no longer marriageable after the signs of puberty have appeared; and widows are condemned to perpetual celibacy. Some families of this cast worship *Vishnu,* and their *Guru* is *Bhadra Achárya,* one of the hereditary chiefs of the *Sri Vaishnavam Bráhmans,* who resides at *Sri Rangam* near *Tritchinopoly.* Younger branches of the family reside at different places, and act as deputies for the chief. The one who acts in this neighbourhood resides at *Doda-Bala-pura,* and is called *Chicana Botalu.* The other families of this cast worship *Siva,* and have for their *Guru* a *Sannyási Bráhman* of the *Smartal* sect, who lives at *Sivaganga,* and acknowledges the *Sringa-giri Swamalu* as his superior.

Customs of the *Ruddi.*

The *Ruddi* are one of the tribes of *Súdra* cast, which being much

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employed in agriculture are called *Woculigaru* in the language of *Karnata*, and *Cunabi* in that of the *Decany* Mussulmans. Besides cultivating the land, both as farmers and as their servants, they act also as porters, and sometimes carry on a small trade in grain. Like all the other *Súdras* employed in agriculture, they have formed a part of the native foot militia, that seems to have been established throughout India, and in which probably every man of this description was enrolled. The considering the *Kshatriya* as the military cast seems an error. At present, the *Ruddi* frequently serve as *Candashara*, or the armed men, that without discipline collected the revenue, and composed the most considerable body in the armies of all native princes. They appear to form a numerous race of men; many of them live below the *Ghats*, and some are of *Telinga*, while others are of *Karnata* extraction. They can all eat together, but they never intermarry, except with particular families, the purity of whose descent they consider as well known. They acknowledge an inferiority to another class of *Súdras* who cultivate the land, and are called *Sadru;* for they will eat in the house of a *Sadru*, but he will not return the compliment by eating in theirs; which, among the *Hindus*, is a sure criterion of rank. They have *Ijyamánas*, or hereditary chiefs, possessing the usual jurisdiction and immunities. Some of them can read and write accompts; but none proceed farther in learning. They eat hogs, sheep, goats, venison, and fowls, and can take *Bang* (or the leaves of the *Cannabis sativa);* but lose cast by drinking spirituous liquors. The men are allowed polygamy; but do not shut up their women, who are very industrious, and perform much of the country labour. They are divided into two sects by a difference of religion; one party worshipping *Vishnu*, and the other *Siva;* but this does not prevent intermarriages. Those who worship *Vishnu* are followers of the *Sri Vaishnavam Bráhmans;* but do not receive either *Upadésa* or *Chakrántikam*, contenting themselves with a little holy-water, which they obtain in return for their charity. Those who worship *Siva* are

followers of a kind of *Jangamas*, but do not wear the *Linga*. The people with whom I conversed seemed to consider these as the same with the *Jangamas* of the *Pancham Banijigas;* but this cast informed me, that they were distinct, and that the *Gurus* of the *Ruddi* were the same with those of the *Curabaru*, whose chief resides at *Cangundy* in the *Bára-mahál*. In their visits, the *Gurus* of both kinds receive from one to ten *Fanams* (from 8*d.* to 6*s.* 8¼*d.*) from each *Ruddi*, according to his circumstances. The *Panchánga* attends at births, marriages, funerals, and other ceremonies; and on each occasion receives a *Fanam*. At the new and full moons, he also gets some trifling present of grain. Besides the worship of the great gods, they offer sacrifices to the destructive powers; among whom a female spirit, named *Chaudéswarí*, has in this neighbourhood many temples. The *Pújári*, in at least one of them, is an oil-maker of the cast formerly described, and his office is hereditary. The *Ruddi* is one of the lowest of the casts employed in agriculture, and allowed to be of pure descent; but many of its members are rich, and are the *Gaudas*, or hereditary chiefs of villages.

Customs of the *Bheri*.

The *Bheri* are a kind of merchants, who call themselves also *Nagaratra*, corrupted by the Mussulmans into *Nagarit*. They pretend to be of the *Vaisya* cast; but this is denied both by the *Bráhmans*, and by the *Comatigas*. They deal in drugs, grain, cloth, and money, and travel about in caravans. Some of them are farmers; but they never cultivate the ground with their own hands; nor do they ever follow any mechanical profession. They are divided by religion into two sects, that do not eat together, nor intermarry; and each has its own hereditary chief, who acts independently as to matters of ceremony; but in matters of a civil nature, the chief of the sect that is most numerous in the place assumes the sole authority. These chiefs are called *Ijyamána*, and possess the usual jurisdiction; but are not indulged with any immunities from taxes. When a man wants to marry, he goes to his hereditary chief, as is indeed usual with all the higher casts, presents him with *betel*, and discloses his

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intention. The chief sends for the father of the girl, and endeavours to bring the matter to a favourable conclusion. As for the girl, she is not at all consulted, and is indeed too young to have formed any attachments, as she must be married before any signs of puberty appear; for afterwards she is considered as being deflowered, and incapable of marriage. Owing to the custom of polygamy, however, very few of the women in this country live in a state of celibacy, except young widows of the higher casts, who never can marry again, and who are very numerous; for matches between old men and mere children are common. The comfort of having children, however, is, in general all the pleasure that married women of rank in India enjoy. Where polygamy prevails, love is little known; or if it does possess a man, he is generally captivated by some artful dancing girl, and not by any of his wives; all of whom were married before they could either excite or feel that passion.

The *Nagaratra*, who worship *Vishnu*, are here the most numerous sect. They burn their dead, and the rules of cast require the widow to burn herself with her husband's body; but this custom has fallen into disuse. They do not intermarry with such of their sect as, being originally of the lower *Carnatic*, speak the *Tamul* language as their native tongue. Their *Guru* is *Trimula-tata Achárlu*, an hereditary chief of the *Sri Vaishnavam Bráhmans*; but, as forming part of the left hand side, they are, in all matters belonging to that division, under the authority of *Dharma Siva Achárlu*, a *Smartal Sannyási*, and who, they say, bestows *Upadésa* and *Chakrántikam* on them, in the same manner as their own *Guru*. My interpreter, however, suspects that in this there is some mistake; as the latter ceremony is performed with the point of *Vishnu's* spear, which a *Smartal Bráhman*, so far as he knows, never uses. Their own *Guru* comes once a year, receives contributions, bestows *Upadésa* and *Chakrántikam*, and, as usual, exercises spiritual jurisdiction. The *Panchánga* acts as their *Puróhita;* and it is of no consequence,

whether or not he be of the same sect with them. Some of this cast are able to read poetry, and peruse a book called *Vaisya Purána*, which they consider as belonging to their cast.

Customs of the *Pallíwánlu.*

The *Pallíwánlu* are the only persons in the *Colar* province (of which this is a part) who cultivate kitchen gardens. They also cultivate the ground, both as farmers, and as their servants. They are all of *Tamul* extraction; and, although they have been in this country for many generations, still speak the *Tamul* language in their own houses, and intermarry with the *Pallí* of *Arcot* and *Vellore.* They are properly called *Vana Pallí*, and must be distinguished from the *Mina Pallí*, who are fishermen. This is one of the most numerous of the tribes of the *Tamul* nation, but is considered as rather low. They have hereditary chiefs called *Gaunda*, who possess the usual jurisdiction. None of them can read. They are allowed to eat animal food, and to drink spirituous liquors. Their women continue to be marriageable after the age of puberty, and are very laborious. They cannot be divorced for any cause, except adultery; but the men are permitted to have a plurality of wives. They bury their dead.

The *Pallíwánlu* have no *Guru;* but the *Panchánga* acts as their *Puróhita* at births and marriages, at the *Amávásya*, and at the annual commemoration of their deceased parents. They wear the mark of *Vishnu's* sect, and sometimes pray to *Vencaty Rámana;* but the proper god of the cast is *Dharma Rája.* His images exactly resemble those of *Godama*, who is frequently called by that name; but by the people here their god is said to be the eldest brother of the five sons of *Pándu*, who lived at the commencement of this *Yugam.* He is a beneficent deity, like *Godama*, abhorring blood; and is worshipped by offerings of fruit, flowers, and the like. The *Pallíwánlu* have temples of this god attended by *Pújáris* of their own cast. Like all the other inhabitants of this country, they are much addicted to the worship of the *Saktis*, or destructive powers; and

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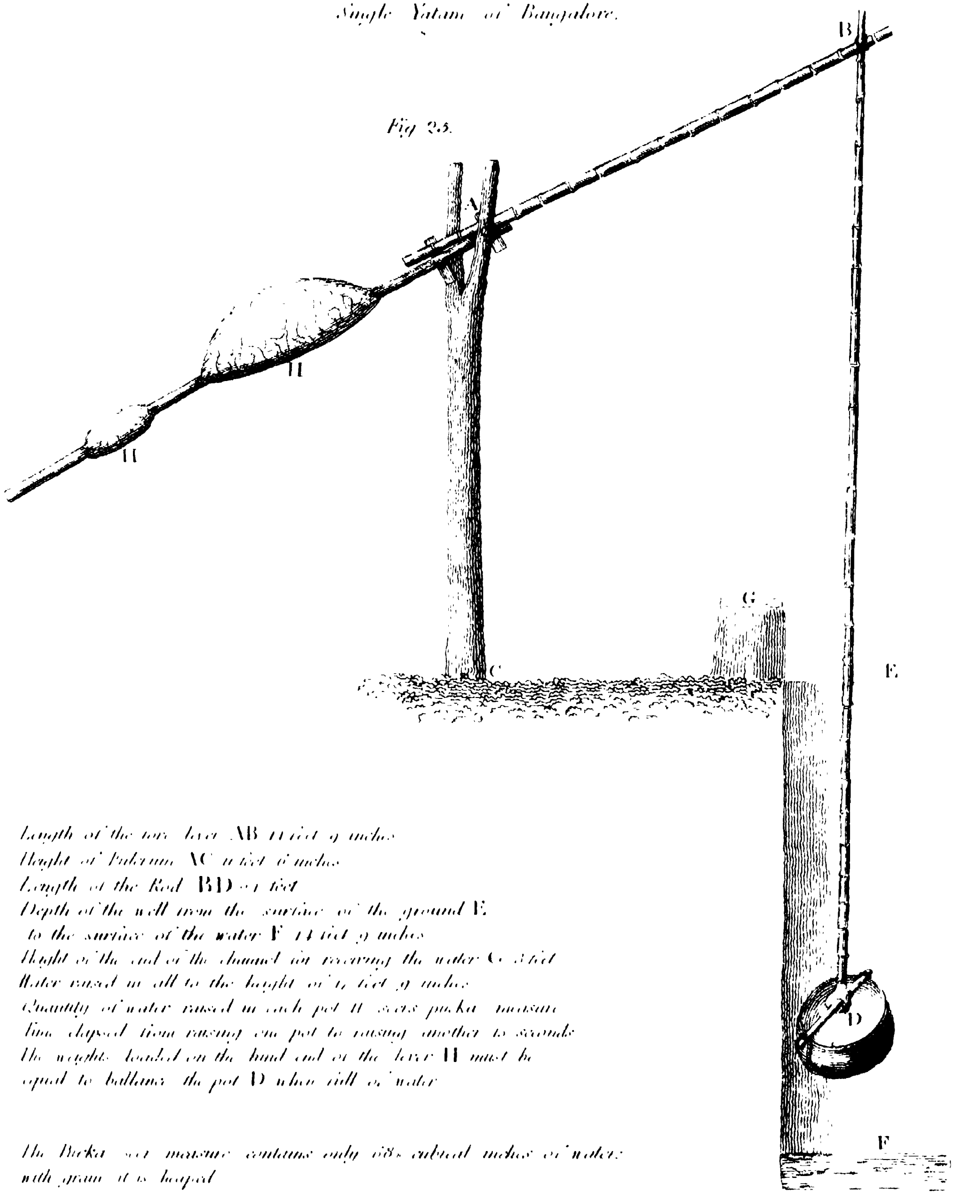
endeavour to avert their wrath by bloody sacrifices. These are performed by cutting off the animal's head before the door of the temple, and invoking the deity to partake of the sacrifice. There is no altar, nor is the blood sprinkled on the image; and the body serves the votaries for a feast. The *Pallíwánlu* have temples dedicated to a female spirit of this kind named *Mutialima*, and served by *Pújáris* of their own cast. These priests can neither read nor write, but their office is hereditary. Their families can intermarry with those of the laity, who cultivate the priest's garden, and give him annually a suit of clothes. The *Pallíwánlu* also offer sacrifices to *Márimá*, whose *Pújáris* here are *Curubáru*; and to *Putálimá*, whose *Pújáris* are *Lingáit*. They sometimes take the vow of *Dáséri*.

Saline wells.

In many parts of this country, the wells contain what the natives call salt water; and at *Bangalore* there are many of this kind. Some of these are situated very near wells that are perfectly fresh; which is easily accounted for, from the vertical situation of the strata. This salt water is preferred, by the dyers, to that which is fresh. It has a maukish disagreeable taste, no smell, and is quite limpid. It is never used medicinally. A white precipitate is formed in it by the nitrate of silver. It, therefore, probably contains some muriate of soda. No sensible action is produced on it by the sulphuric, nitric, or muriatic acids, nor by lime-water. The carbonates of soda and potash throw down a white precipitate, which is readily dissolved in the sulphuric acid; and the solution is soluble in water. It, therefore, contains magnesia. When evaporated, this water deposits a dirty pulpy semideliquescent matter, which is only partially soluble in water. It effervesces strongly with the sulphuric acid; but part of it falls down again in an insoluble state. The water, therefore, contains lime also. While the sulphuric acid is acting on the precipitate formed by boiling, it emits a very offensive smell. The lime and magnesia are evidently suspended in the water by being dissolved in some volatile acid; and, if it had not been for

Single Yatam of Bangalore.

Fig. 25.



Length of the fore lever AB 11 feet 9 inches
Height of Fulcrum AC 11 feet 6 inches
Length of the Rod BD =21 feet
Depth of the well from the surface of the ground E
to the surface of the water F 14 feet 9 inches
Height of the end of the channel for receiving the water G 3 feet
Water raised in all to the height of 17 feet 9 inches
Quantity of water raised in each pot 11 seers pucka measure
Time elapsed from raising one pot to raising another 15 seconds
The weights loaded on the hind end of the lever H must be
equal to ballance the pot D when full of water

The Bucka seer measure contains only 68 cubical inches of water;
with grain it is heaped

the offensive smell above mentioned, I should have supposed the solvent to be the carbonic acid. Circumstances did not allow me to ascertain this point; nor to analyse the water with any precision.

Manner of raising water by the *Yatam.*

In this country the water for supplying gardens is generally raised by a machine, called *Yatam* in both the *Tamul* and *Karnata* languages. Of this a sketch is given in (Fig. 25). In the lower *Carnatic* the machine is wrought by a man, who walks along the balance; coming before the *fulcrum*, when he wants to sink the bucket; and going back again, when he wants to bring up the water. Another man in this case attends to empty the bucket. But in this country one man, standing at the mouth of the well, performs the whole labour. I have made no actual experiments to ascertain by which of the two methods the same number of men would raise the greatest quantity of water; but it appears to me, that the plan in use here is the most perfect. At *Madras*, the man who walks along the lever, or balance, is in considerable danger of falling; and the man who empties the bucket is in danger of being hurt, for it must come up between his legs, as he stands fronting the end of the lever; and although the bucket there is much larger than the one in use here, I have observed that the workman was never able to empty more than two thirds of its contents, owing to the awkward position in which he stood. The machine, from which the drawing was taken, consisted of a lever or balance (A B) 14 feet 9 inches in length. This rested on a fulcrum (A C) 11 feet 6 inches high. The *fulcrum* is commonly a tree planted near the well. A rod or *Bamboo* (B D) 24 feet in length, by which the workman raises and lowers the bucket (D), containing 789 cubical inches. Depth of the well, from the surface of the earth (C E) to the surface of the water (F) 14 feet 9 inches. Height of the end of the canal for conveying away the water (G), 3 feet. Total height to which the water is raised, 17 feet 9 inches. The far end of the lever is loaded with mud (H H), so as exactly to counterbalance the pot, when full of

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water. The average time which the workman took to raise a pot of water was 15 seconds. By this means, therefore, a man can in an hour raise about 671 ale gallons to the height of 17 feet 9 inches. If the depth of the well be less, as is usually the case, the quantity raised by the same labour will be much greater; but in what proportion I did not ascertain.

CHAPTER V.

FROM BANGALORE TO DODA BALA-PURA.

HAVING finished my inquiries at *Bangalore*, on *July* 3d, 1800, I went to *Agara*, a fortified village two cosses distant, which is inhabited by farmers, and where a great many *mangoes* are raised for the *Bangalore* market. The intermediate country is good, but does not contain a number of inhabitants nearly sufficient to cultivate the whole. The people say, that they are in great want of rain, which is a month later than usual.

CHAPTER V. July 3. Appearance of the country.

Having assembled the village officers and principal farmers, they informed me, that the merchants of *Bangalore* frequently advance them money to pay their rents, and are afterwards contented to take one half of the crop for the advance, and for interest. These advances are sometimes made six months before the crop is reaped.

Money advanced on the crops.

The manner of dividing the crops, between the government and the cultivator at this village, may be taken as an example. This estimate is made on the supposition, that the heap of grain contains at least five *Candacas*. If it should contain forty *Candacas*, it pays no more; but if less than five *Candacas*, there is a deduction made from the allowances that are given to different persons. Twenty *Candacas* may be considered as the average size of the heaps.

Manner of dividing the crops between the cultivator and the government.

There is first set aside from the heap,

	Seers.
For the gods; that is, for the priests at their temples -	5
For charity; that is, for the *Bráhmans*, *Jangamas*, and other mendicants - - - - - - -	5
Carried over - -	10

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	Seers.
Brought over - - -	10
For the astrologer, or *Panchánga;* who, if no mendicant be present, takes also the 5 *Seers* - - - - -	1
For the poor *Bráhman* of the village, whose office is hereditary	1
For the *Nainda,* or barber - - - - - -	2
For the *Cumbhara,* or potmaker - - - - -	2
For the *Vasaradava,* who is both a carpenter and blacksmith	2
For the *Asaga,* or washerman - - - - -	2
For the *Alitigara,* or measurer - - - - -	4
For the *Tarugara,* or *Aduca,* a kind of beadle - - -	7
For the *Gauda,* or chief of the village; who out of this is obliged to furnish the village sacrifices - - - -	8
For the *Shanaboga,* or accomptant - - - -	10
The heap is then measured; and for every *Candaca* that it contains, there are given the following perquisites:	
To the *Toti* and *Talliari,* or watchmen, between them, ½ *Seer;* which, on a heap of 20 *Candacas,* is - - - -	10
To the accomptant, 2½ *Seers* - - - - -	45
To the chief of the village, 2½ *Seers* - - - -	45
The *Nirgunty,* or conductor of water, then takes the bottom of the heap, which is about an inch thick; but this is mixed with the cow-dung that, by way of purifying it, had been spread on the ground; in a heap of 20 *Candacas,* this will be	20
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The accomptant also, for every *Candaca* of seed sown, and which ought to produce one heap of this size, gets two men's load of straw with the grain in it.

This, on a heap of 20 *Candacas* of 160 *Seers,* amounts to about 5¼ per cent. of the gross produce. Of the remainder the government takes first ten per cent. and then a half; so that it receives 55 per cent. of the neat produce, and the farmer receives 45 per cent.

The reason of this difference is, that formerly the country was managed by officers who, by the natives, were called *Daishmucs*, and by the Mussulmans *Zemindars*, and who were paid by receiving ten per cent. from the heap before division. When these officers were abolished by Hyder, he took the ten per cent. and paid the salaries of the new officers appointed in their places.

In dividing *Jagory*, a kind of scramble takes place among the same persons who shared in the heap of rice; and in this the farmer partakes. During this scramble about a fourth part of the *Jagory* is taken away in handfuls, and the remainder is divided equally between the government and the farmer.

All the dry-field ought to be let for a money rent; but besides this, the farmer must pay the following dues:

To the barber, 30 *Seers* for every heap of grain.

To the potmaker, for pots, from 20 to 30 *Seers*.

To the iron smith, 20 *Seers* for every plough. The farmer finds the materials; but the smith must make all the implements of husbandry, and assist in building and repairing the farmer's house.

To the washerman, for any family consisting of two men and two wives, or under that number, 50 *Seers;* for a family of four men and four wives, 100 *Seers;* and for a larger family 150 *Seers*.

Then for every heap of *Ragy*, which upon an average contains 10 *Candacas*, he gives,

	Seers.
To the gods - - - - - -	10
To the mendicant *Bráhmans*, &c. - - -	20
To the hereditary poor *Bráhman* of the village - -	10
To the astrologer - - - - -	10
To the accomptant, per plough - - - -	20
To the watchman - - - - -	10

Other grains pay one half only of these deductions.

It not unfrequently happens, that farmers cannot be induced to take the dry-field for a money rent; the officers of government are

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then necessitated to let it on a division of crops. In this case, every heap of grain of about ten *Candacas* pays,

	Seers.
To the gods and *Bráhmans* - - - -	10
Washerman - - - - - -	2
Potmaker - - - - - -	2
Blacksmith - - - - - -	2
Barber - - - - - - -	2
Accomptant - - - - - -	100
Watchman - - - - - -	2
Beadle - - - - - - -	10
	130

which is about 8⅛ per cent.

Village officers, *Gauda*, and rent.

The *Gauda*, called corruptly *Gaur*, and in the Mussulman language the *Potail*, is the chief *Ryut*, or farmer, in the village, and receives the whole dues of government. The rent of each field of dry land is fixed by an old valuation, which it is supposed was made in the time of *Krishna Ráyalu*; and for any field more cannot be legally demanded; but the equal division of the crops is always wished for by the farmers. This, they allege, arises from the flourishing state in which the country was when the valuation was made, compared with its present poverty; but, considering the great diminution of the value of gold and silver since that period, I am more inclined to believe, that the preference given to a division of crops arises from the facility which that plan offers for defrauding the government.

The office of *Gauda* was originally hereditary; but now these persons are appointed by the *Amildar*, and continue in place so long as they keep up the collections to their supposed value, or until some other man undertakes, by bringing a greater number of farmers, to make the revenue more productive. The *Gauda* settles all disputes, in the same manner as the hereditary chiefs of casts do. His council always consists of four elders. In case of any delinquency in the village, the *Gauda* and his council instruct the

Shanaboga, or accomptant, to write out a statement of the case, and to transmit it to the *Amildar* for his information and decision. He frequently advances money for the other farmers, to enable them to pay their rents, and has the whole of their crops as his security. The whole remuneration for his trouble, so far as is avowed, is the share which he receives in the division of the wet crops.

July 3.

Shanaboga.

The *Shanaboga*, called *Shanbogue* by corruption, and *Curnum* by the Mussulmans, is the accomptant of the village. He is always a *Bráhman*, and his office is hereditary. He is under the orders of the chief of the village, who is almost always a *Súdra*; but the allowances of the accomptant are greater, as he must give up the whole of his time to business. He keeps all the accompts, and writes all the letters as dictated to him by the chief of the village. These two officers ought to be a mutual check on the conduct of each other.

Village servants.

The servants under the chief and accomptant of the village are the *Toti*, *Talliari*, *Nirgunty*, *Tarúgara*, and *Alitigara*.

Toti and *Talliari*.

The office of the *Toti* and *Tulliari* is the same; but the first is of the *Whalliaru* cast, and the second is either a *Madiga* or a *Bayda*. These persons hold their places by hereditary right, and are the watchmen of the village. They are sent on all messages, and as guides for persons travelling on public business. They watch the crops in the day-time, and assist the farmers to do so at night. Their most peculiar duty, however, is to ascertain the boundaries of each field, and of each farmer's possession.

Nirgunty.

The *Nirgunty* is generally a *Whallia*; but sometimes a *Súdra* holds the office, which is hereditary. His duty is, to divide the water of the tank or canal, and to convey the proper share to each man's field. He, of course, has the charge of the sluices, and of the small canals and drains for watering the fields. He also assists in watching the crops.

Tarugara, or *Aduca.*

The *Tarugara*, or *Aduca*, collects the farmers, and prevents them

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from following any other occupation than that of cultivating the land. The lower classes of people in India are like children; and, except in the more considerable places, where they meet with uncommon encouragement to industry from Europeans, are generally in such a state of apathy, that, without the orders of government, they will hardly do any thing. The duty of the *Aduca* is to bustle among the farmers, and to call them out to work. He may therefore be called the beadle of the village.

Alitigara.

To eight or ten villages there is only one *Alitigara,* or public measurer. The office is not hereditary, and is often vacant; any one appointed for the time performing the duty, and taking the perquisites. The persons employed are commonly *Whalliaru.*

Division of the *Talucs* into *Hoblies.*

Each *Taluc,* or district, is divided into small subdivisions called *Hoblies,* which pay from four to nine thousand *Pagodas* (1,343*l.* 3*s.* 5½*d.*—3,022*l.* 1*s.* 8*d.*). These are managed by a set of officers who are interposed between the *Amildars* and *Gaudas.* The head person

Parputty.

of a *Hobly* is by the natives called a *Parputty,* and by the Mussulmans a *Sheikdar.* He visits every village to see the state of cultivation and of the tanks, and settles disputes that are above the reach of the *Gauda's* understanding. In this he is always assisted by the advice of four old men. He ought not to inflict any corporal punishment, without the orders of the *Amildar;* I have, indeed, seen them dispense with this regulation, but the punishments were not severe. The *Parputty* receives the rents from the *Gaudas,* and transmits them to the *Amildar.* Most of these officers are *Bráhmans;* very few are *Súdras.*

Guddy Shanaboga.

In each *Hobly,* or subdivision, there are two accomptants, by the natives called *Guddy Shanabogas,* and by the Mussulmans named *Sheristadars.* Until *Tippoo's* time these officers were hereditary, and they have always been *Bráhmans.* In each *Hobly,* for every thousand *Pagodas* (335*l.* 15*s.* 10¼*d.*) rent that it pays, there is also a

Munigar.

Munigar, or a *Tahsildar,* as he is called by the Mussulmans. These are the deputies of the *Parputty* to execute his orders, and are in

fact a respectable kind of *Hircaras*, or messengers. They also are all *Bráhmans*. The whole of the *Hobly* establishment is paid by monthly wages.

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Right of property in lands.

The farmers have no leases; but, it is not customary to change any man's possession so long as he pays the fixed rent. As cultivators are at present scarce, they require to be managed with great indulgence. A man, indeed, cannot lawfully leave his farm without permission from the *Amildar*, or chief of the district; but, when a man complains that from poverty he is not able to cultivate his land, the *Amildar* must either abate his rent, allow him to go away, or make him advances to purchase stock. This is called giving *Tacavy*.

Grass lands.

In this place the pasture land has a rent fixed on it, and the different inhabitants pay a proportion, according to the number of cattle that each keeps: cows and buffaloes pay at the same rate; sheep and goats pay nothing. Four fifths of the whole stock here died last year of the *disease;* and the people in the neighbourhood are alarmed, by its having now again made its appearance.

July 4.

Sirja-pura, and its manufactures.

4th *July*.—I went three cosses to *Sirja-pura*, one of the manufacturing towns dependent on *Bangalore*. The weavers of *Sirja-pura* are of the casts called *Devangas*, *Shalay*, and *Togotaru*. The cloths were formerly made of a very fine quality, but at present the only demand is for coarse goods. The merchants here act merely as brokers, and the weavers frequently carry their own goods for sale to *Bangalore*. Purchases are made here by traders from *Seringapatam*, *Sira*, *Chatrakal*, *Codeal*, *Savanuru*, *Gubi*, *Bangaluru*, *Colar*, *Malavagul*, *Cangundy*, *Hosso-cotay*, *Bala-pura*, *Tumcuru*, *Magadi*, and *Krishna-giri*. The merchants of this place bring their cotton from *Bangaluru*, *Hosso-cotay*, and *Colar*.

Appearance of the country.

Owing to a want of hands, much of the country through which I passed to-day is waste; but by the way I saw many fortified villages. The country is remarkably bare. The crops of dry grains

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ought now to cover the ground; owing, however, to the want of rain, they have not yet begun to spring.

July 5. *Lacor* and its manufactures.

5th *July*.—I went four cosses to *Walur*, and by the way passed through a manufacturing town named *Lacor*. It is not quite so large as *Walur*; but is a well built mud fort, strengthened by a fine hedge.

Manufactures of *Walur*.

The weavers of *Walur* are of the casts called *Devangas*, *Padmashalays*, *Shaynagas*, *Togotas*, and *Coiculru*, who are a *Tigul* tribe, as the people, here say; for in *Karnata* proper, all the tribes that speak the *Tamul* language are called *Tigulru*. The cloths made by the *Coiculru* have red borders, like those made by the *Togotaru*; but they are of a thinner fabric.

Shirays, cost from - -	$1\frac{1}{4}$ *Rupee*	to	$1\frac{1}{2}$.
Cloth used like a shawl	$\frac{1}{4}$ ditto	to	$\frac{1}{2}$.
Cloth 16 cubits long -	$1\frac{1}{4}$ ditto	to	$1\frac{1}{2}$.

For sale, the weavers carry part of their goods to the neighbouring towns at their weekly markets, and partly sell them to merchants who come from *Hosso-cotay*, *Colar*, *Maasty*, *Lacor*, *Sirja-pura*, *Bangaluru*, and *Krishna-giri*. They procure all their cotton from the merchants of *Hosso-cotay*.

Appearance of the country.

The country between *Sirja-puru* and *Walur*, though naked, is very fine. Almost the whole has formerly been under cultivation; but, from a want of inhabitants, a large proportion of it is at present waste.

Vanity of the native officers.

I found the *Bráhman* who had been attentive on my former visit, and who had called himself *Amildar*, or chief of a district. This I now learned was a falsehood. He was only a *Parputty*, or chief of a subdivision; and his civility seems to have arisen from a desire of being considered as a great man, and of receiving attentions to which he was by no means entitled. Having been now detected, he did every thing, so far as he could venture, to cross my wishes. This assumption of titles to which they have no right, is a very common piece of vanity among the natives of India, though it often

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leads to very severe mortifications: all the *Amildars* here wish to be called *Subadars*, or chiefs of principalities, and from all their dependents receive this title; but in the *Rája's* dominions two persons only have a just claim to this appellation.

Customs of the *Bestas*, or palanquin-bearers.

Every where in *Karnata* the palanquin-bearers are of *Telinga* descent, and in their own families speak the language of their original country. In the language of *Karnata* they are called *Teliga Bestas*, but in their own dialect they are called *Bui.* Having assembled those who live here, they gave me the following account of their cast. Their proper occupations, beside that of carrying the palanquin, are fishing, and the distillation of rum. Wealthy men among them become farmers; but none of the cast hire themselves out as farm-servants. They are acknowledged to be of the *Súdra* cast, but rather of a low rank. Their hereditary chiefs are called *Pedda Bui*, which among the Europeans of *Madras* is bestowed on the head-man of every gentleman's set. They are allowed a plurality of wives, who are not confined. Though they all can eat together, they never intermarry, but with certain families, which are well known to each other, so as to avoid all danger of an impure race. They are allowed to eat sheep, goats, and fish, but ought to lose cast by drinking spirituous liquors. I well know, however, that this law is very much neglected. They bury the dead, and are all worshippers of *Vishnu.* They make offerings of fruit and flowers to the *Saktis*, but never offer bloody sacrifices to these destructive powers. Their *Gurus* are hereditary chiefs of the *Sri Vaishnavam Bráhmans*, who receive their contributions, and bestow on them holy water, and consecrated victuals; but do not give them *Upadésa* nor *Chakrántikam.* At births, marriages, and funerals, the *Panchánga*, or astrologer, attends as *Puróhita*, or priest. Some of them are taught to read and write accompts; but they never acquire any farther learning.

Customs of the *Cumbharu.*

The potmakers and dyers form one cast, and are all properly called *Cumbharu;* but those who dye are, on account of their trade,

CHAPTER V. July 5. called *Nilgaru*. The two trades are followed indifferently by persons of the same family; but the cast is divided into two nations, the *Teliga* and *Karnata*, that do not intermarry. Those here are of the former nation, and give the following account of themselves.

They retain the *Telinga* language, being a tribe of that nation. They can eat in the house of a *Karnataca* potter, but he will not return the compliment; as they are allowed to eat animal food, which he abhors. Even among those of the *Telinga* nation, all good men abstain entirely from this indulgence. It is not lawful for them to drink spirituous liquors. They are allowed polygamy; but do not confine their women, nor divorce them for any cause except adultery. Girls continue to be marriageable after the age of puberty, and are very laborious in making pots. Widows cannot marry again; but it is never expected that they should burn themselves with the dead bodies of their husbands.

They follow no other trades than those of potters and dyers. The hereditary chiefs of this cast are called *Gotugaru*, or renters, and live at the *Kasba*, or chief town of the district. They possess the usual jurisdiction, and are exempted from all duties, on condition of collecting the rent that is paid to government by the potmaker of every village. This office is hereditary, and we have seen that, on condition of furnishing the cultivators with pots, he receives considerable dues on all the produce of the land. In many parts of India, the potmaker is bound to supply all travellers with pots for dressing their victuals; but here this is done to such travellers only as are going on public business, and in consideration of this the potter pays nothing for his clay. They use a wheel, but are very unskilful in their art; for they are entirely ignorant of any glazing or enamel.

The potters of the *Telinga* nation say, that they are of the *Sálivúhanam* cast; as that mighty king was the son of one of their women. The *Bráhmans* allege, that she was impregnated by one of the sacred order. These potters wear a thread like the *Bráhmans*,

and allege, that they are possessed of *Mantrams*, or forms of prayer, which they can read, and which are endowed with considerable power. This is altogether denied by the *Bráhmans*, who laugh at the prayers of the potters, as being low trash in the vulgar language. The potters certainly understand the *Andray*, or poetical language of their nation, and are possessed of a translation of the *Bhágavata Purána* in that language.

A few of these potters worship *Siva*, and are followers of the *Smartal Bráhmans;* but by far the greater part are of *Vishnu's* side, and follow the hereditary chiefs of the *A'ayngar*. On their followers of this tribe these *Gurus* bestow *Upadésa, Chakrántikam*, and holy water. The renter settles all disputes, and punishes delinquents; the power of the *Guru* being confined to the bestowing of spiritual gifts, and the receiving of contributions, both as dues on marriages, and as annual tribute, besides what he gets as charity at casual visits. The *Panchánga*, or astrologer, acts as their *Puróhita*, or family priest, and reads *Mantrams*, or set forms of prayer, in the *Sanskrit* language, at births, marriages, funerals, new moons, and at the annual commemoration of their father's death, which is only called *Tithi* when the parties are *Bráhmans*. Some of the potters understand the *Sanskrit*, so far at least as to be able to repeat the prayer after the astrologer, which is supposed to add considerably to its efficacy. At these ceremonies there attend for charity all the *Bráhmans* of the neighbourhood, who are *Vaidikas*, and who think that they can get any thing worth their while. These worshippers of *Vishnu* among the potters never take the vow of *Daseri;* but when they are sick they sometimes make a vow to live by begging, for a certain number of days after they recover. This is looked upon as very agreeable to the gods, and a sure way of obtaining their favour. They offer bloody sacrifices to the *Saktis*, or destructive spirits; but never act as priests in their temples. They never pray to *Dharma Rája*.

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July 6. Appearance of the country.

6th *July.*—I went three cosses to the place which in our maps is named *Vackaleer;* but which the natives, to my ear, pronounce *Waculeray.* The half of the way next *Walur* passes through a very barren country, on which, even at this season, there is scarcely a leaf of grass to be seen. It is thinly covered with bushes and stunted trees. Beyond this there is some cultivation; and towards some rocky hills, at the foot of which *Waculeray* stands, the soil becomes good, and is well cultivated and wooded. *Waculeray* contains about a hundred houses, and is fortified by a wall and citadel, both of mud. It has no hedge. The reason assigned by the farmers for living thus together, and for shutting themselves and their cattle within the walls of a fort, is, the frequency of robbers, who live in the hills and woods, and who in the night plunder every thing that is not well secured.

Waculeray.

Bráhmans numerous.

The farmers in this town are seventeen houses; and there are twenty-two houses of *Bráhmans,* who live better, and are better lodged, than the *Súdras,* although, except two or three officers of government, they all subsist upon charity.

July 7. Appearance of the country.

7th *July.*—I went three cosses to *Colar.* The first part of the road passed through a narrow valley, confined between two ridges of low, rocky, naked hills. The valley in many places has formerly been cultivated; but now the whole is waste, and covered with bushes, among which the *Oleander (Nerium odorum)* is common. Farther on, the hills to the right disappearing, the country in that direction is level to a great extent, seems to be very fertile, and has probably once been almost all cultivated. It contains many reservoirs, but from the want of trees looks very naked. The spots which at present are cultivated do not seem to be more than a tenth part of the country.

July 8, &c. Country near *Colar.*

8th—11th *July.*—I passed these days at *Colar,* examining the state of agriculture in its neighbourhood. This is the most level country that I have seen above the *Ghats;* but it contains many

bare rocky hills, which are situated at considerable distances, with level ground between them. Rice forms a very large proportion of the crop, and equals in quantity the *Ragy*. The country is very poorly watered, and often suffers from a want of rain; for an old revenue officer of the place remembers four famines that arose from this cause.

Colar.

Colar has a large mud fort, which is now repairing. The town contains seven hundred houses, many of which are inhabited by weavers. It was the birth-place of *Hyder Aly*, whose father lived and died in the town. A handsome mausoleum was erected for him by his son; and near it a mosque, and a college of *Moullahs*, or Mussulman priests, with a proper establishment of musicians, were endowed to pray for the repose of his soul. The whole is kept up at the expense of the Company.

On the hill north from the town was formerly a *Durga*, or hill fort, in which for some time resided *Cossim Khán*, the general of *Aurungzebe*, who, towards the end of the 17th century, made the first regular establishment of Mussulman authority to the south of the *Krishna* river. *Colar* was the capital of one of the seven *Pergunnahs*, or districts, into which that general divided his conquests, which had been formerly invaded by the Mussulman king of *Vijaya-pura (Bejapoor)*, and afterwards had become subject to the *Marattahs*. The other *Pergunnahs* were, *Sira*, *Budihalu*, *Baswapattana*, *Penu-conda*, *Hosso-cotay*, and *Burra Bala-pura*. These formed what the Mussulmans called the *Subah* of *Sira*, or the *Carnatic Bejapoory Balaghaut*, which are recent distinctions not at all known to the natives, and of which the memory is likely soon to be entirely obliterated.

Table land on the summit of a hill.

The hill-fort above *Colar* has not been rebuilt since it was destroyed in an invasion of the *Marattahs*, who in the course of the 18th century made many attempts to recover this country. On the top of the hill are four small villages, which have their fields, gardens, and tanks, raised high above the level of the country, in

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the same manner as it is above the parts near the sea. Their little territories are surrounded by high rocks, and separated by woody ridges, like a perfect epitome of *Karnata* proper, or *Balaghat,* as it has been called by the Mussulmans. The soil is fertile, and the water in many places being near the surface renders it fit for gardens. Although hill forts are generally reckoned unhealthy, this seems to be by no means the case on this mountain. The inhabitants rather look upon the air as more healthy than common, and last year their cattle suffered much less than those of their neighbours. The hill seems to attract more moisture than the level country, and to be more favoured with rain; for a certain field on it annually produces a crop of rice, without any artificial watering, which in this arid climate is looked upon as a kind of miracle. There is a spring of water, which flows from the side of this hill in a small stream; and, such a thing being here very uncommon, the *Bráhmans* have conducted it along a gutter formed in the rock; and where it falls from thence, have, under a building, placed some stones, which the obliging imagination of the natives conceives to resemble a cow's mouth. The place, as being holy, is much frequented; and a ruinous temple at some distance attracts to its annual feast about ten thousand pilgrims.

Robbers.

Even in such a remote place, to which every access is steep and difficult, I found, that the inhabitants were not protected by their extreme poverty, but each village was provided with fortifications. The people said, that, whenever any neighbouring *Polygar* was troublesome, the *Baydaru,* or hunters, were accustomed in the night time, under pretence of being the *Polygar's* men, to go and plunder their neighbours. This they always did by surprise, as their love for plunder is at least equalled by their cowardice. Whenever these ruffians are prowling about, one or two men keep watch in a tower; on the first alarm, all the inhabitants fly to their arms, and, retiring to the tower, from thence fire upon the robbers, who in general attempt to carry away the cattle.

Reservoirs.

In the country round *Colar*, the irrigated land is watered entirely by means of reservoirs. When any rich man builds one of these, in order to acquire a name and reputation, it is customary to give him and his heirs, free of rent, one-tenth part of the land which the reservoir waters, and also for every *Candaca* of watered land thus formed, he obtains, free of rent, six *Seers* sowing of *Ragy-land*, which amounts to about 146 acres of dry field for every 1000 acres of that which is irrigated. So long as he enjoys these, he is bound to keep the tank in repair. If the reservoir be very large and expensive, the man who builds it, and his heirs, have one-fourth of the land which it waters; but then they get no dry-field. When the family of the original builder becomes extinct, the government reassumes the free lands, and keeps the tank in repair. Very great tanks, however, have seldom been formed by private persons; and those which cost 20,000 *Pagodas* (6,746*l.* 15*s.* 10¼*d.*), or upwards, have almost all been made at the immédiate expense of the government. The farmers contribute nothing toward the building or repairing of tanks; but when, from a great and sudden influx of water, one is in danger of bursting, they all assemble, and work to clear the sluice *(Cody)*, and other passages for letting off the superfluous water. They form the channels for conveying the water to their fields; and from their share of the crop are paid the *Nirgunties*, by whom it is distributed. Six of these are sufficient to manage 150 *Candacas* of land, which is about one hundred acres for each man.

The crops raised at *Colar* on watered land are rice, sugar-cane, *Betel-leaf*, *Carlay*, *Hessarú*, *Udu*, *Jola*, *Wull' Ellu*, and kitchen stuffs, called here *Tarkari*.

The quantity of rice sown here is nearly equal to that of *Ragy*. The kinds are:

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July 8, &c.

NAMES.	Season when they are reaped.	Months required to ripen.
1 *Doda Byra*, the *Doda Butta* of *Mysore* -	Both	5
2 *Doda Caimbutti* - - - - - -	Ditto	4
3 *Arsina Caimbutti* - - - - - -	Ditto	4
4 *Sana Caimbutti* - - - - - -	Ditto	4
5 *Guti Sanna* - - - - - - -	Ditto	4
6 *Bily Sanna* - - - - - - -	Ditto	4
7 *Murarjilla* - - - - - - -	*Kártika*	6
8 *Sucadas* - - - - - - -	*Vaisáka*	4
9 *Punoe Raja* - - - - - - -	Both	4
10 *Yalic*, or *Haric Raja* - - - - -	Ditto	4
11 *Garuda nellu* - - - - - -	*Vaisáka*	3
12 *Puttu butta* - - - - - - -	Ditto	3
13 *Toca nellu* - - - - - - -	Ditto	3
14 *Cari toca nellu* - - - - - -	Ditto	3
15 *Gany salli* - - - - - - -	Both	4
16 *Cali Yuga*, or *Caliga Byra* - - -	*Kártika*	6
17 *Gyda Byra* - - - - - - -	Both	5
18 *Cari Bolcari* - - - - - - -	Ditto	3

Two crops of rice.

The seasons for cultivating rice here are two; and the two crops, from the months in which they ripen, are named the *Kártika* and *Vaisáka; Kártika* this year reaches from the 19th of October to the 16th of November; *Vaisáka* occupied from the 23d of April to the 23d of May. In this neighbourhood no rice is transplanted. When the seed is sown dry, the cultivation is called *Puledi;* when it is prepared, by being sprouted, it is, as at *Seringapatam*, called *Mola*.

Two kinds of cultivations.

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The only kind of rice cultivated as *Puledi*, or dry seed, is the *Doda Byra;* and it is only sown in this manner for the *Kártika* crop. In the course of *Vaisáka* and *Jyaishtha* plough the ground without water four times. About the end of the latter month (22d June), after a day's rain, sow the seed broad-cast, and cover it with the plough. Then harrow the field with the implement called *Halivay* (Figure 9). This crop has no manure, and the field is not inundated till the end of the second month; when it must be harrowed again, and the weeds removed by the hand. A good crop of this is reckoned fifteen seeds, a middling one ten seeds.

July 8, &c. *Puledi*, or dry-seed cultivation.

The *Mola* for the *Kártika* crop is cultivated as follows: In *Ashádha*, and the first half of *Srávana* (23d June, 4th August), plough from seven to nine times, the field being always inundated. Then manure it, either with leaves or dung; both are rarely given: but, could they be procured, this would greatly increase the produce. Then let out all the water, except two inches in depth, and sow the prepared seed broad-cast. Next day the field is dried, and sprinkled with some dung. At the end of three days it is covered with water for four hours. On the seventh water the field for a whole day. After the tenth day, it must be kept constantly inundated to the depth of two inches. At the end of the month harrow it once lengthwise; on the third day harrow it across; and on the fifth day harrow again lengthwise. Four days afterwards weed with the hand, and repeat this after an interval of two weeks. All kinds of rice are cultivated in the same manner. The rice for seed, after being trodden out, must be dried three or four days in the sun; and may be kept either in a straw *Mudy*, or in a store called *Canaja*. When it is to be prepared, it must be dried one day in the sun; then soaked a night in water; and next morning it must be mixed with *Harulu (Ricinus)* leaves and dung, and tied up in straw. This is dipped in water, and placed under a large stone. In two days it must again be dipped, and is then fit for sowing. To sow an acre,

Mola, or sprouted-seed cultivation. *Kártika* crop.

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the large grained rices require about $1\frac{17}{100}$ Winchester bushel; $1\frac{2}{100}$ bushel of the small grained rices is sufficient. The produce of the *Doda Byra*, which is the common coarse grain of the country, is the greatest. A good crop of this is said to be 15 seeds, or nearly $20\frac{1}{2}$ bushels, an acre; and a middling crop about 10 seeds, or $13\frac{7}{10}$ bushels. The other kinds, on the same extent of ground, produce eight or ten *Seers* less.

Vaisákha crop of rice, in the sprouted-seed cultivation.

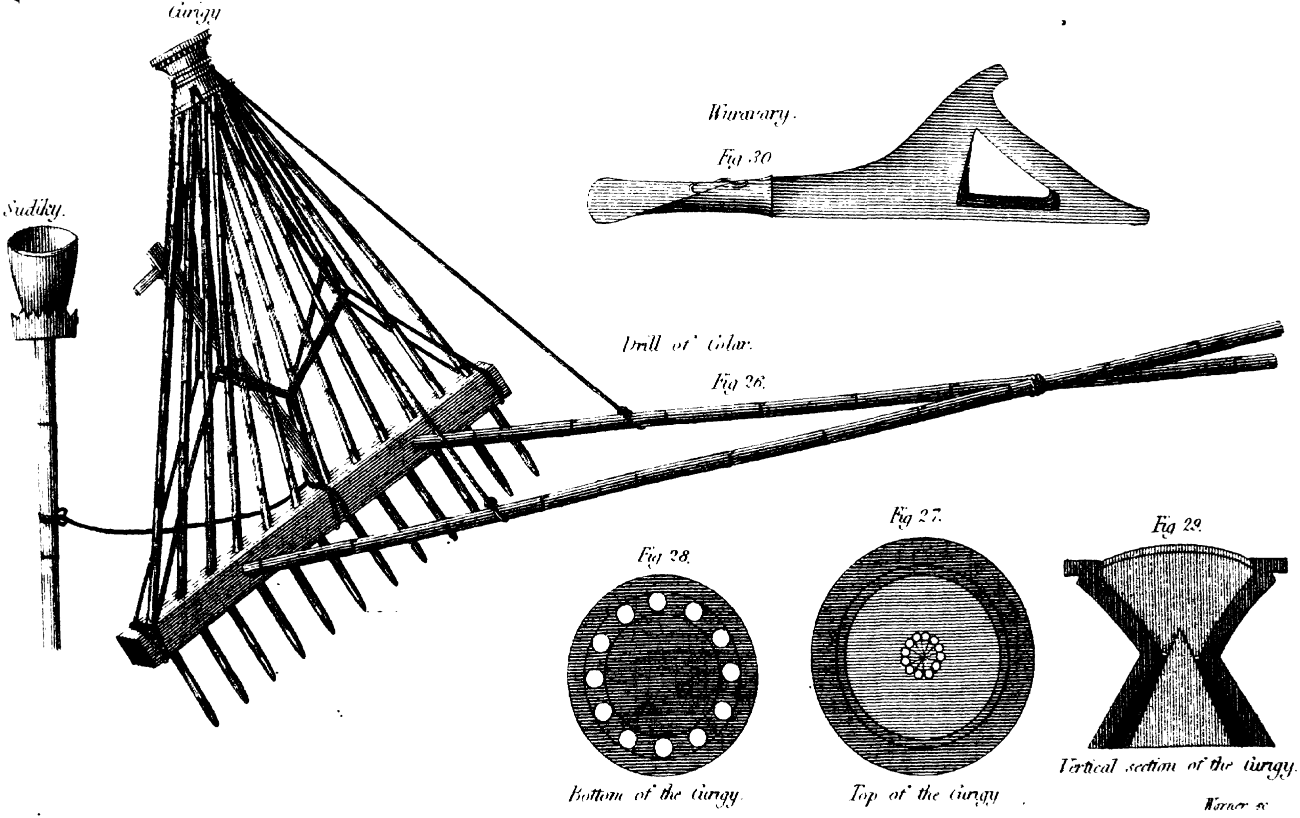
The *Mola* cultivation for the *Vaisákha* crop is as follows. Having inundated the field, plough it five or six days during the course of the twenty days preceding the feast *Dipavali*, which happens this year on the 18th of October. In the course of the next month plough four times. Then let out all the water, except two inches in depth; manure with leaves; and, having trodden these well into the mud, sow the prepared seed broad-cast. Next day dry the field, and manure it with dung. Three days after, water for two hours. Then every second day, for three times, water for four or five hours. Afterwards keep the field inundated. At the end of the month harrow, with the *Halivay*, three times in three directions, with a day's rest between each harrowing. A week afterwards weed with the hand, and in two weeks repeat this operation. This is the most productive crop, and gives from one to two seeds more than that which is reaped in *Kártika*.

Utility of much ploughing.

It must be observed, that one or two ploughings less, or more, make a great difference in the produce. What I have stated here is the full cultivation; but some farmers are so necessitous, that for a crop that is sown sprouted-seed, they can only afford four or five ploughings.

Preservation of rice.

The mode of cultivation, or the season of sowing, makes no difference here in the quality of the grain, nor in the length of time that it will keep good. The grain is always preserved in the husk; and until wanted for immediate consumption, is never beaten. In store-houses, or *Canajas*, if well dried in the sun previous to its


Curgy
Sudiky.
Wurrary.
Fig 30
Drill or Colar.
Fig 26.
Fig 28.
Bottom of the Curgy.
Fig 27.
Top of the Curgy
Fig 29.
Vertical section of the Curgy.
Warner sc

having been put up, it preserves well for two years. *Paddy* is sometimes kept in pits, or in the straw packages called *Mudys;* but these are inferior to the store-house.

Manner of managing the water.

The *Vaisáka* crop, though entirely raised during the dry season, is by far the greatest; as at its commencement the tanks are quite full of water, and the farmers know exactly the quantity of seed that the water which they have will bring to maturity. Frequently, indeed, at the commencement of the season for cultivating the *Kártika* crop, they have some water remaining; and, if the rains set in early, might have a double crop of rice on all their wet lands; but should the rains be late, all the seed and labour would be lost. Except, therefore, when the quantity of water in the reservoir is uncommonly great, the farmers, in place of a *Kártika* crop of rice, take one of some of the other grains which I have before mentioned.

Jola.

Of these crops *Jola (Holcus sorghum)* is the greatest. There are two kinds of it, the white and the red, which are sometimes kept separate, and sometimes sown mixed. The red is the most common. Immediately after cutting the *Vaisáka* crop of rice, plough four times in the course of twenty days. Wait till the first rainy day, and then, making furrows with the plough, drop in the seeds at five or six inches distance, by means of the instrument named *Sudiky* (Figure 26), which is tied to the handle of the plough. Then smooth the field by drawing over it a bunch of thorns. The seed having been sown too thick, when the plants have grown a month they must be thinned by a ploughing. In three months the *Jola* ripens, and requires no manure. In rich soils and favourable seasons it sometimes produces sixty fold; but thirty are reckoned a good crop, and twenty-five a middling one. In rich soils the *Jola* is sometimes followed by *Carlay,* in place of a *Vaisáka* crop of rice. The *Jola* is both made into flour for puddings and cakes, and is boiled whole to eat with *Curry,* like rice. It is a good grain; but, at the utmost, does not keep above two years. For cattle the straw

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is very inferior to that of *Ragy*, and when given in a green state is highly prejudicial to them. When there is a deficiency of water, *Jola* is also sometimes sown in place of the *Vaisáka* crop of rice. It is then sown toward the end of *Aswaja*, or 18th of October; but grows very poorly, and does not give more than one-half of what it produces in the rainy season.

Udu, Hessaru, Wull' Ellu.

In the following manner are cultivated the pulses called *Udu* and *Hessaru*, and *Wull' Ellu (Sesamum)*. Immediately after cutting the *Vaisáka* crop of rice, plough the ground four times, sow the seed broad-cast, and cover it with the plough. They require neither manure, nor weeding. The pulses require about 0,$\frac{594}{1000}$ Winchester bushel of seed an acre, and in a good crop produce about $3\frac{1}{2}$ bushels. The *Sesamum* requires only half as much seed, and in a good crop produces $2\frac{1}{2}$ bushels.

Sugar-cane.

The kinds of sugar-cane cultivated here are four, which are esteemed in the following order, 1st *Restali*, 2d *Puttaputti*, 3d *Maracabo*, 4th *Cuttaycabo*. The two last are very small, seldom exceeding the thickness of the little finger; yet the *Cuttaycabo* is the one most commonly cultivated. This is owing to its requiring little water; for by means of the machine called *Yatam* it may have a supply sufficient to bring it to maturity. From the end of *Phálguna* to the end of *Chaitra* (14th March—23d April) plough eight or ten times. Manure the field with dung, and plough it again. Then spread leaves on it, and cover them with the plough. By the small channels that are to convey the water, the field is then divided into beds eight cubits broad. Furrows are then drawn across the beds at the distance of nine inches from each other. The cuttings of cane, each containing four or five eyes, are then placed lengthwise in the furrows, the end of the one touching that of the other. They are covered with a very little earth, over which is laid some dung. They are then watered, the water flowing through every channel, and entering every furrow. For one month the watering is repeated once in three days; the earth round the canes must then

be loosened with the point of a sharp stick. For fifteen days more the watering must be continued; when the whole field should be hoed, and levelled with the *Col Kudali* (Plate II. fig. 3.). Four days afterwards, between every second row of sugar-cane a trench is dug, and into this the water flows from the channels. Thus in the progress of its cultivation each bed assumes two forms, as exemplified in the annexed sketches (Figures 31, 32). When there is no rain, the field requires to be watered once in the fifteen days. When four or five months old, the canes are tied up in bundles; and, when they are a cubit and a half high, this is repeated. In eleven months they are ripe, and a month and a half are allowed for the crop season. The soil here used for sugar-cane is the rich, black soil called *Eray;* and after sugar it requires one or two years rest before it gives a good crop of rice. The sugar-cane is all made into *Jagory;* 74 *Seers* measure, or nearly 18 ale gallons of juice, are said to produce 50 *Cucha Seers* weight (about 26½ lb. avoirdupois) of the *Jagory.*

Things cultivated on dry-field.

Ragy, Huruli, Harica, Shamay, Huts'-Ellu, Harulu, Cambu, Hessaru, Udu, Wull' Ellu, Barugu, Navonay, Sashivay, tobacco, and *Goni* are the articles cultivated on dry field; those of which much is cultivated being placed first, and those of which little is cultivated being placed last in proportion.

Ragy, or *Cynosurus Corocanus.*

The farmers do not separate the *Ragy* with crooked spikes, from that which has straight ones; and they consider the blackness incident to some kinds of this grain as owing to its getting wet when it is thrashing. In other places, black *Ragy* is considered as a distinct variety. The ground is prepared here in the same manner as at *Seringapatam;* but the seed is sown by means of a kind of rude drill-plough, called *Curigy* (Figures 26, 27, 28, 29), and made entirely of wood and bamboos. Behind the *Curigy* is tied the implement called *Sudiky,* into which is put the seed of the *Avaray* or *Tovary;* without one of which pulses *Ragy* is never cultivated. By this method, for every twelve drills of *Ragy* there is one drill of

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pulse. After the field has been sown, it is harrowed with the bullock-rake called *Halivay*, and then smoothed with a bunch of thorns, which is drawn by a bullock, and pressed down by a large stone. Here sheep are only used to trample the *Ragy* fields when there is a scarcity of rain. The bullock-hoe called *Cunty* is used on the 15th and 18th days after sowing. On the 26th day the harrowing is repeated. On the 32d the field is cleared from weeds with the implement called *Wuravary* (Figure 30). In four months the *Ragy* ripens, and in five the pulses. The farmers would always prefer thrashing it out immediately after it is reaped; but the officers of revenue prevent them from taking it out of the stack until the balances of rent are paid, which sometimes takes up two or three months. On a good soil, *Ragy* will grow with a dunging given once in two years; but, if possible, it ought to have dung every year. After most other crops *Ragy* thrives ill, and the ground requires much dung to bring it again into heart. Rest, or want of cultivation, is also reckoned prejudicial to a *Ragy* field. Forty-five fold of *Ragy*, and forty fold of the accompanying pulses, is reckoned a great crop; and thirty-five of *Ragy* with twenty of the pulses is a middling one. This sounds great; but the seed required for an acre being only $1\frac{406}{1000}$ peck of *Ragy*, and $\frac{422}{1000}$ parts of a peck of the pulses, a great crop is only 15 bushels, $3,\frac{26}{100}$ pecks of *Ragy*, and 4 bushels $\frac{87}{100}$ peck of the pulses; while a middling crop is 12 bushels $1,\frac{21}{100}$ peck of the former, and 2 bushels $\frac{41}{100}$ peck of the latter. This estimate is formed on the measurement of only one field.

Huruli, or *Dolichos biflorus.*

Huruli, or *Horse-gram*, is of two kinds, black and white; both are here sown intermixed. The worst qualities of soil are those commonly used for this grain; and on the same fields *Shamay*, *Harica*, and *Huts'-Ellu*, are cultivated, without one crop injuring the other, or without a rotation being considered as of the smallest benefit. For *Horse-gram* plough twice, in the course of a few days, any time in *Kártika* (19th October—16th November). Then after a shower

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sow broad-cast; or, if none happen, steep the seed for three hours in water. Plough in the seed. It has no manure, and in three months ripens without farther trouble. Cut it down early in the morning, stack it for one day, and then dry it five days in the sun. Tread it out, and clean it with the fan. It preserves best in a store-house, but does not keep longer than one year. The forage is here reckoned inferior to *Ragy* straw. The seed for an acre is $1\frac{111}{1000}$ peck. The produce in a good crop is fifteen fold, or 4 bushels and $\frac{1}{2}$ peck an acre; and in a middling one ten fold, or 2 bushels and 3 pecks.

Harica, or *Paspalum frumentaceum* Roxb. MSS.

For the grain called *Harica*, at the commencement of the rains plough three times in the course of a few days. As soon as the heavy rains begin, sow the seed broad-cast, and cover it by a third ploughing. It requires no manure, and here the pulse called *Tovary* is never sown with *Harica*. At the end of a month weed it with the implement called *Wuravary*. It requires six months to ripen, and is cut near the root, stacked on the field for five or six days, and then dried in the sun, and trodden out. This grain is commonly preserved in pits, and does not keep longer than one year. It is never made into flour. The straw is bad forage, and is used chiefly for manure. The seed required for an acre is $1\frac{111}{1000}$ peck. The produce in a good crop, twenty fold, or 5 bushels $2\frac{1}{4}$ pecks an acre; in a middling crop, fifteen fold, or 4 bushels $\frac{1}{2}$ peck.

Shamay, or *Panicum miliare* E. M.

There are three kinds of the *Panicum*, called *Shamay*, cultivated; *Hari*, *Cari*, and *Hal* or *Bily*. They are never intermixed, and the cultivation of the first kind differs from that of the other two. For *Hari Shamay* plough three times in the same manner as for *Ragy*. If there be any to spare, give the field dung, sow broad-cast, and harrow with the bullock-rake. In three months the grain ripens without farther trouble; when it is cut down, stacked on the field for six days, and then trodden out. It keeps best in the store-house, and is never made into flour. Cattle eat the straw without injury, but it is inferior to the straw of either *Ragy* or *Rice*. For

CHAPTER V. July 8, &c. the other two kinds, plough three times in the course of *Ashádha* (23d June—21st July); then, after the first good rain, sow broad-cast, plough in the seed, and harrow. They do not necessarily require dung; but if any can be spared, they will grow the better for it. When ripe, which happens also in three months, they are managed as the other kind is. The seed and produce of all are nearly the same. Seed $\frac{8351}{10000}$ peck an acre. Produce in a good crop, 15 fold, or 3 bushels $\frac{1}{2}$ peck an acre; in a middling crop, 10 fold, or 2 bushels $\frac{1}{3}$ peck.

Huts'-Ellu. The corymbiferous oil-bearing plant, called *Huts'-Ellu*, is never sown here as a second crop. After the male, or heavy rains are over, plough once, sow broad-cast, and plough in the seed. It gets no manure, and in three months ripens without farther trouble. It is then cut down near the root, stacked for six days, dried in the sun for three, and trodden out. The seed is preserved in store-houses; the straw is used only as manure. For seed, an acre requires $\frac{348}{1000}$ parts of a peck, and in a good crop produces rather more than one bushel, while in a middling one it does not produce quite $3\frac{1}{2}$ pecks.

Harulu. In the fields here, both the great and small kinds of *Harulu*, or *Ricinus*, are cultivated; but, although the mode of cultivation is the same for both, they are always kept separate. In the beginning of the female or slight rains plough twice. When the rains become heavy, plough again; and then, at the distance of $\frac{3}{4}$ of a cubit from each other in all directions, place the seeds in the furrows. When the plants are a span high, weed with the plough, throwing the earth up in ridges at the roots of the plants. At the end of the first and second months from the former weeding, repeat this operation. In four months it begins to give ripe fruit; and once in the four days the bunches that are ripe are collected in a pit until a sufficient quantity is procured. It is then exposed to the sun, and the husks are beaten off with a stick. In the May following, the plant dries up, and is cut for fewel. It is only cultivated in the good *Ragy*

soils, which it rather improves for that grain, although it gets no dung. The small kind is reckoned the best, and most productive.

July 8, &c. *Cambu.*

The *Cambu (Holcus spicatus)* used here is of the kind named *Sana*, or *Chica*, both of which words signify small. In the course of eight or ten days in *Vaisáka* (23d April—23d May) plough twice, then sow broad-cast, and plough in the seed. No manure is required. The field is then harrowed, and smoothed with a bunch of thorns. Some people, along with this grain, put drills of the pulses called *Tovaray* and *Horse-gram*. At the end of the first month superfluous plants are destroyed by drawing furrows throughout the field, at the distance of four inches. Much care is necessary in guarding this crop, and that of *Jola*, from the paroquets, which are very destructive. It ripens very unequally. At the end of the third month, the first set of ears are cut off; in ten days more, a second set; and at a similar interval, the last set is reaped. The whole is kept in a heap, until two days after the last cutting; when it is dried in the sun five or six days, and then trodden out. It is commonly preserved in pits, where it does not keep longer than five or six months. The grain is sometimes given to horses; but is also used for the food of man, both boiled entire, and made into flour. Cattle eat the straw, but it is chiefly used for thatch. It is sown on good *Ragy* soil, but rather exhausts it, the following crop requiring an increased quantity of manure. A good crop is reckoned twenty seeds, a middling one fifteen fold.

Hessaru.

The pulse called *Hessaru* is here commonly raised on dry-field. It requires a black clay; and, although it have no manure, it does not injure the following crop of *Ragy*. In the course of a few days in *Vaisáka* plough twice, sow broad-cast, plough in the seed, and harrow. In three months it ripens without farther trouble. It is then cut by the ground, stacked for six days, dried in the sun for four, and trodden out by oxen as usual. The grain, for use, is preserved in store-houses, and does not keep good more than two months, even although it be occasionally dried. The straw is totally

CHAPTER V. useless, and will not even answer for manure. A good crop is reckoned ten seeds, a middling one six.

July 8, &c. *Udu.* The management of the pulse called *Udu* is exactly the same with that of *Hessaru*, but its produce is rather smaller. For seed, the grain of both is preserved by mixing them with the ashes of cow-dung, which keep away insects.

Wull' Ellu. The *Sesamum*, or *Wull' Ellu*, is only of one kind, and is here more commonly called *Atsa Ellu*. In *Vaisáka* plough twice without manure, sow broad-cast, and plough in the seed. In three months it ripens without farther trouble, is cut down by the ground, and is afterwards managed exactly like the *Udu*. The seed is preserved in the same manner. The produce in a good crop is 20 seeds, and in a middling one twelve. The straw is used for fewel.

Barugu. *Barugu*, or the *Panicum miliaceum* of Linnæus, is called *Codra* by the Mussulmans of the south, and *Pani Varagu* by the inhabitants of *Coimbetore*. There is only one kind. After the heavy rains have ceased, plough twice, and without manure sow broad-cast, and plough in the seed. Without any farther trouble it ripens in two months and a half, is cut down close by the ground, stacked for one or two days, and then trodden out. The grain is kept in store-houses, and preserves well for two years. It is boiled entire, like rice. The straw is only used for fewel. A good crop produces twelve seeds, a middling one eight. It requires a rich black clay.

Navonay. The people here know of no distinction in the kinds of *Navonay*, or *Panicum Italicum*. The ground for it is prepared as for *Ragy*; and when ready, the end of a *Ragy* field is sown broad-cast with *Navonay*; the seed is ploughed in, and the ground, which requires no dung, is harrowed. It has no weeding, and ripens a little before the *Ragy*. The ears are cut off, kept in a heap for two days, dried in the sun, and then trodden out. In store-houses the grain will preserve for two or three years. It does not injure the ground for *Ragy*. In a good crop it produces only twelve fold, in a middling

one eight. The straw is used only for fewel, which is here a very scarce article. CHAPTER V.

The *Sashivay* is a mustard, which is always sown mixed with *Ragy*. It ripens sooner than that grain; and, when dry, the branches are broken with the hand, exposed two days to the sun, and then beaten out with a stick. In this country, oil is never made from the seed, as is usual in *Bengal;* it is employed as a seasoning in *curries* and pickles. July 8, &c. Mustard.

Tobacco is planted in very small quantities; and that which is raised here is reckoned greatly inferior to what is brought from the low country. The consumption is not great. Tobacco.

The *Janupa*, *Goni-plant*, or *Crotolaria juncea*, is here always raised by the manufacturers, exactly in the manner that I have described at *Bangalore* (see page 226). *Goni.*

In this district, the cultivation of the *Betel-leaf*, or *Piper Betle*, although it is commonly, is not always, a separate profession. It thrives best in low ground, where it can have a supply of water from a reservoir. If that cannot be had, a place is selected, where water can be procured by digging to a small depth. A black soil is required; and as it pays no rent for the first three years, land that has been waste is generally granted for the purpose. After the *Betel-garden* fails, the land is given to the farmer; who in the first year generally takes a crop of sugar-cane, which thrives remarkably well; for the kinds called *Restali* and *Puttaputty* grow to the length of eight cubits. The *Betel-leaf* garden pays 5 *Fanams* (about 3*s.* 4*d.*) for every 100 holes; but this is less rent than the government derives from sugar-cane. In these gardens ginger is commonly planted. A *Betel-leaf* garden is thus managed. In *Chaitra*, or *Vaisáka*, (26th March—23d May) trench over the whole ground one cubit deep, and surround it with a mud wall; immediately within which plant a hedge of the *Euphorbium Tirucalli*, and of the *Arundo tibialis* (Roxb: MSS.). When there is not plenty of rain, this must for six months be regularly watered. *Betel-leaf.*

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Then dig the garden, and form it into proper beds, leaving a space of about twenty feet between them and the hedge. The sketch (Figure 33) will assist the imagination in understanding the description of the beds. From the main channel for conducting the water to the garden (1), draw others (2) at right angles, and distant 22 cubits. Between every two of these, to drain off the superfluous water, draw others (3.3) about a cubit wide, and deeper than the former. The garden is thus divided into rows ten cubits in width, having on one side an elevated channel (2) for supplying it with water, and on the other side a deep canal (3), to carry off what is superfluous. These rows (4) are divided into beds, six cubits wide (5), by cuts made from the deep canals, and ending in *cul de sacs* (6), which carry off the water into their principals. Each of these beds is divided into two parts (7), by a narrow channel coming from those which bring the supply of water. Each division of a bed, therefore, has on one side a channel (8) to supply it with water, and on the other a canal (6), to carry off what is superfluous; and it is surrounded by a narrow bank, about six inches high (9), which excludes the water that flows through the channels: within these little banks the divisions of the beds are carefully levelled. In the center of each division is then formed a row of small holes, distant from each other one cubit; and in *Panshya* (17th December—14th January) in every hole are put two cuttings of the *Betel-leaf* vine, each two cubits long. The middle of each cutting is pushed down, and slightly covered with earth; while the four ends project, and form an equal number of young plants, which for the first eighteen months are allowed to climb upon dry sticks, that are put in for the purpose. For the first week after being planted, the shoots, must be watered twice a day with pots; for another week once a day, and until the end of the second month once in three days. A small drill is then made across each division of the beds, and between every two holes in each; and in these drills are planted rows of the seeds of the *Agashay*, or *Aschynomone grandiflora; Nugay*, or

Guilandina Moringa; and *Varjepu*, or *Erythrina indica*, E. M. The young *Betel* plants must then have some dung, and for four months more must be watered with the pot once in three days. Afterwards, so long as the garden lasts, all the channels must once in four days be filled with water. This keeps the ground sufficiently moist, and water applied immediately to the plants is injurious. The garden ought to be kept clean from weeds by the hand, and once a year, in December, must have dung. When the plants are a year and a half old, they are removed from the sticks; two cubits of each, next the root, is buried in the earth; and the remainder, conducted close to the root of one of the young trees, is allowed to support itself on the stem. At the end of two years two cubits more of each plant are buried in the ground; and ever afterwards, this is once a year repeated. At the beginning of the fourth year the cultivator begins to gather the leaves for sale, and for six or seven years continues to obtain a constant supply. Afterwards the plants die, and a new garden must be formed in some other place. In order to give additional coolness to the garden, at its first formation a plantain tree is put at each corner of every bed, and by means of suckers soon forms a cluster. So long as the garden lasts these clusters are preserved. At all times the gardens are very cool and pleasant; but they are not neatly kept; and in the space between the hedge and the beds, a great variety of bushes and weeds are allowed to grow.

In this part of the country there are no palm gardens of any consequence.

Kitchen gardens.

In what formed the *Pergunnah* of *Colar*, and which includes *Bangalore*, probably from having been longer under a Mussulman government, the *Tarkari*, or kitchen gardens, seem to be more extensive, and better cultivated, than those near *Seringapatam*. They are chiefly cultivated by the cast called *Vana Palli*, as I have lately mentioned, a people who originally came from the lower *Carnatic*. At *Colar* the gardens are in very bad order; but at some

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neighbouring places I have seen them very neat. The soil, to be fit for these gardens, ought to be black rich mould, where water may be had by digging wells to no great depth; for they are all watered by the machine called *Yatam.*

Yatam, a machine for raising water.

In this immediate neighbourhood the *Yatams* that are wrought by men walking backwards and forwards on the lever are preferred. There are here two kinds; one in which two men walk on the balance, which has a bucket containing 40 *Seers*, or $9\frac{734}{1000}$ ale gallons, and which can raise this five men's height, or 26 feet 3 inches. In the other kind, one man only walks on the lever, and can raise 32 *Seers*, or $7\frac{787}{1000}$ ale gallons, from the depth of three men's stature, or $15\frac{3}{4}$ feet; for, the men here being in general small, $3\frac{1}{2}$ cubits, or $5\frac{1}{4}$ feet, are reckoned the ordinary human stature. The people of this place reckon, that the same number of men will raise more water by the larger *Yatam*, than by the smaller one; and much more by their small one, than by the *Yatam* which is wrought entirely from below: of this, however, I am doubtful. The machine here is equally rude with that described at *Bangalore.* I examined one while it was at work, and which was wrought by two men on the lever. It raised the water only eight feet, and at each time thirty five *Seers* only could be emptied from the bucket. It drew water six times in the minute, and consequently raised 3066 ale gallons in the hour, or 1022 gallons for each man; but at *Bangalore* each man can raise 671 gallons to more than double the height. I have seen the single *Yatam* drawing water from about eight feet deep at the rate of seven times a minute, by which means a man will raise 1175 gallons an hour.

Gardens.

Garden ground, in order to have a sale for its produce, must be near a town. It pays a fixed money rent, in proportion to what it would pay if cultivated for dry grains, but much higher. Beside the garden stuffs cultivated at *Seringapatam*, the gardeners of this country raise,

Gaysagussa, or *Papaver somniferum.*

Cossumba, or *Carthamus tinctorius.*

Godi Juvi, or the wheat called *Triticum monococcum.*

Toor, or *Nawt Ragy*, a variety of *Cynosurus Corocanus.*

I shall give some examples of their modes of cultivation; on which, at the same time, several articles are in general raised on the same ground; and almost always the same ground gives annually two crops.

Manner of cultivating the poppy and *Cossumba.*

The poppy, *Papaver somniferum*, is plentifully cultivated both for making opium, and on account of the seed; which is much used in the sweet cakes that are eaten by the higher ranks of the natives. In *Aswaja* (19th September—18th October) dig the ground one cubit deep with the *Col Kudáli* (Plate II. fig. 3). In the following month smooth the ground, and divide it into small plots of three cubits square, separated from each other by small banks, like those of rice fields, but neater and lower; and at the same time form channels winding through the plots, so that every one may have a channel running past one of its sides. By this method any quantity of water which the plant requires is very readily conveyed to the whole. When the channels and squares are formed, the garden is dunged, and the poppy seed is sown. Over this is sprinkled a little more dung. At every span's length two seeds of the *Cossumba* are then planted on the small mounds which separate the squares; or in place of *Cossumba*, radishes are sometimes raised. Water is then given to every square, and once in four days this is repeated. After the plants have acquired strength, no preference is given to any particular time of the day for watering; but, while they are very young, the morning is preferred. In six or seven days the poppies will be two inches high; and then the gardener with a shell removes those that are superfluous, so as to leave them about four inches apart. In twenty days they are about six inches high; the weeds must then be removed with a small hoe, and a very little dung must be given. In two months and a half the poppy is ready

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for making opium, and in three months the seed is ripe. It is not injured by extracting the opium; which operation is performed by the gardeners, who sell the produce to the drug-merchant. In six weeks the radishes are fit for pulling, and in three months the *Cossumba* begins to flower. As the flowers begin to decay, the flowerets *(flosculi)* are pulled out by the hand from the common cup *(Perianthum commune)*, exposed to the sun till dry, and then preserved in pots; when they are fit for being sold to the dyers. This operation does not prevent the seeds from ripening; and in the cookery of the natives a decoction of them is much used.

After the *Cossumba* has been collected, the same ground may be cultivated either with wheat or with Garden *Ragy*.

Wheat.

The wheat *(Triticum monococcum)* in this climate is very liable to be blighted; and even when it succeeds, its produce is not more than one half of that of *Paddy*: but as one half of this last is husk, the consumable produce of wheat and rice is not very different. *Tippoo* was at great pains to increase this kind of cultivation; and, as an encouragement, sent seed to be distributed in different places. Here the quantity might yet be greatly increased; as much of the higher lands, now cultivated for rice, are fit for wheat. The ground is sometimes ploughed five times; and sometimes dug with the hoe called *Col Kudáli* to the depth of one cubit, which is reckoned preferable. In *Jyaishtha* (24th May—22d June) the seed is sown broadcast, and covered with the hoe. The channels and squares are then formed, as for the poppies; and the ground is smoothed with the hand, and dunged; while such of the seed, as may happen to be above ground, is pushed down with the finger. In forty-five days the field must be watered nine times. It is then weeded with the instrument called *Wuravary* (Fig. 30.); after which one watering in six days suffices. It ripens in three months, is cut, tied up in small sheaves, and stacked for four days. It is then dried one day in the sun, and thrashed out by beating the sheaves against a log of

timber. To separate the awns, the grain is then beaten with a stick. In the fields of wheat, radishes are planted on the mounds which divide the squares.

Garden *Ragy*.

The *Toor*, *Tota*, or *Nat' Ragy*, is not the same with that cultivated on dry grounds, although in the sense adopted by botanists it is not specifically different; but the seed which is raised on dry-field will not thrive in gardens; nor will that which is raised in gardens thrive without irrigation. Garden *Ragy* is always transplanted, and hence it is called *Nati*. For the seedling bed, dig the ground in *Paushya* (17th December—14th January), and give it a little dung. Divide it into squares, and let it have some more manure. Then sow the seed very thick; cover it with dung, and give it water, which must be repeated once in three days. The ground, into which it is to be transplanted, is in *Paushya* ploughed five times; and must be dunged and divided into squares with proper channels, like a poppy garden. About the beginning of *Mágha*, or end of January, water the seedlings well, and pull them up by the roots: tie them in bundles, and put them in water. Then reduce to mud the ground into which they are to be transplanted, and place the young *Ragy* in it, with four inches distance between each plant. Next day water, and every third day for a month this must be repeated. Then weed with a small hoe, and water once in four days. It ripens in three months from the time when the seed was sown; and in a middling crop produces twenty fold. It is only sown on the ground at times when no other crop could be procured, as the expense of cultivation nearly equals the value of the crop.

Manure.

The leaves or shoots used by the farmers here as manure are, the *Handur;* the *Canaga*, or *Robinia mitis;* the *Yecada*, or *Asclepias gigantea;* the *Calli*, or *Euphorbium Tirucalli;* the *Devadarum*, or *Erythroxylon sideroxyloides*, E. M.; the *Cadangody*, or *Convolvulus cuneiformis*, Buch: MSS.; the *Gandary;* the *Utrany*, or *Achyranthes muricata;* the *Dotury*, or *Argemone;* the *Wumutty*, or *Datura Metel;*

the *Tumbay*, or *Phlomis esculenta*, Roxb: MSS.; and the *Hungara*, or *Dodonea viscosa*.

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Cattle. The number of oxen raised in the country is not sufficient for the demand of the farmers, who purchase them at *Krishna-giri* and *Cangundy*, two places in the *Bára Mahál*. It is not the custom here to pay any rent for such pasture lands as have never been cultivated; but, where a part of the ground that has been cultivated becomes waste, the cultivators give a small consideration for liberty to feed their cattle on it. The proportion of this rent does not exceed 8 per cent. of that which is given for the ground when in cultivation: indeed the pasture is so wretched, that more could not be afforded. Last year about one half of the cattle here died.

Servants wages. The servants of the farmers, or the *Batigaru*, get here annually 4 *Candacas* ($29\frac{23}{100}$ bushels) of grain, and twenty *Fanams* in money (about 13*s.* 5*d.*); but out of this, he must pay to government, for the ground on which his house stands, three *Fanams*, or about 2*s.* They are of all casts, except *Bráhmans* and Mussulmans.

Men hired by the day to labour in the field get $\frac{1}{3}$ of a *Fanam* ($3\frac{342}{1000}$ pence) a day, and women $\frac{1}{4}$ of a *Fanam*, or nearly 2 pence.

Rent. When a farmer runs away for arrears of rent, or oppression, and goes into the district of another *Amildar*, it is not customary in any native government to give him up. This is a considerable check to arbitrary oppression, as a very unreasonable *Amildar* would be soon deserted. The *Gaudas* here rent the villages, and every year make a new settlement with the *Amildar*; while they receive authority to take from the cultivators as much as they legally can. Some *Gaudas* rent two or three *Grámas*, or villages; but to each there is an hereditary *Gauda*, who receives the title, is at all public meetings treated with certain marks of deference, and at the village feasts performs certain religious ceremonies. Should he not be the person who rents the

village, his civil authority ceases; but, without inviting the hereditary chief to attend, the renter cannot call an assembly of the elders, to settle the disputes cognizable by such jurisdictions.

Manner of dividing the crops.

In almost every village *(Gráma)* the customs of the farmers, especially in dividing the crops, are different. The *Shanaboga*, or village accomptant, keeps a written account of these customs; which is referred to as being the law, or custom of the manor: for of the word *Gráma* manor would perhaps be a better translation than village, which is usually given. The custom of *Colar* in dividing the crop of rice is as follows:

The corn, when cut down, is made up into burthens, as large as a man can carry on his head. From each of these is taken a bunch, equal in all to about $\frac{56}{80}$ parts of the seed sown. These parts are divided thus:

	Seers.
To the *Nirgunty*, or distributer of water - -	16
To the *Toti*, or watchman - - - -	16
To the *Aduca*, or beadle, called here *Cauliga* - -	16
To the iron smith - - - - -	8
	56

Then from the heap is taken,

By the *Toti*, or watchman, whatever sticks to the seals of mud, that he puts on to prevent embezzlement, which may be about - - - - - -	3
By the *Pujaries*, or priests of the village gods - -	4
By vagrants of all religions and kinds, who, under pretence of dedicating themselves to God, live by begging -	4
By the *Gauda* who rents the village, as his perquisite -	8
By the government, as its perquisite, called *Sadi* - -	16
By the hereditary *Gauda*, or chief of the village, in order to defray the expense of the feast which is given to *Ganésa*, under the form of a stake of the *Cassia Fistula* - -	16
Seers -	51

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The heap is then measured, and divided equally between the government, or renter, and the farmer; but a certain portion is left, which is divided as follows:

From this portion twelve *Seers* for every *Candaca* in the heap are measured, of which the accomptant takes one third, and the remainder goes to the renter. This formerly belonged to the *Daishmucs*, or *Zemeendars;* but these having been abolished by *Hyder*, and officers paid by regular salaries having been established in their stead, it was but fair that government should receive this perquisite. Indeed, most of *Hyder's* operations in finance seem to have been highly judicious and reasonable; and on account of his justice, wisdom, and moderation, his memory is greatly respected by the natives of all descriptions.

From what remains there is taken,

	Seers.
By the *Panchánga*, or astrologer - - - -	1
By the *Cumbharu*, or potmaker - - - -	1
By the *Assaga*, or washerman, - - - -	1
By the *Vasara-dava*, or blacksmith and carpenter, - -	1
By the measurer the sweepings, about - - -	8
Seers	12

It is evident, from the very unequal size of the heaps, and various rates of produce in different soils and seasons, that no exact calculation can be formed of the amount of these perquisites on the whole crop. If the heap contain 20 *Candacas*, and the produce be ten seeds, then they will amount to about 17 per cent.; of which the government gets $5\frac{1}{2}$ per cent.; or all together 47 per cent. of the crop; from which is to be deducted the expence of the tanks.

In order to encourage the industry of the farmers, when there is not a sufficient quantity of water to cultivate rice, the government advances the seed of the other grains that are raised on such occasions, and receives one half of the produce.

Money.

All accompts are here kept in *Canter'raia Pagodas* and *Fanams.* The latter passes at present for 17 *Dudus,* and $13\frac{1}{4}$ are only equal to 1 *Ikery Pagoda;* but, in order to preserve uniformity, I make all my calculations by the exchange at *Seringapatam,* where 12 *Fanams* are equal to the *Pagoda.* In fact, according to the assay made at the *Calcutta* mint, the *Ikery* or *Sultany Pagoda* is worth very nearly 12,913 *Fanams;* so that at *Seringapatam* the *Fanam* passes for more than its intrinsic value, and here it passes for less. The *Niruc,* or rate of exchange, by which all different coins can be offered as a legal tender of payment, is fixed once or twice a month by the *Amildar,* who on such occasions assembles all the principal merchants, and acts by their advice.

Weights.

The common *Cucha seer* here weighs only 21 *Dubs;* and the *Maund* contains 48 *Seers,* or is equal to $25\frac{48}{100}$ lb.; but *Jagory,* or coarse sugar, tamarinds, and *Ghee,* or boiled butter, are sold by a *Maund* of 52 *Seers,* or of $27\frac{6}{10}$ lb.

Measures.

The *Candaca* measure contains 160 *Seers* of the same standard with that at *Seringapatam.* The *Sultan* failed entirely in his endeavours to introduce an uniformity of weights and measures. Grain is always sold by the hundred *Seer.*

State of commerce.

The trade and manufactures of *Colar* had been entirely ruined by *Tippoo;* as it was in the immediate neighbourhood of his enemies dominions, with whom he would allow of no communication. Both are now rapidly on the increase, and exceed even what they were in the reign of *Hyder.* No army came this way in the last war; but they suffered a little in the invasion by General Smith, and considerably by that of Lord Cornwallis. The merchants suffered much by *Tippoo's* forcing goods on them at a high rate; and still more by his capriciously forcing them to change the places of their abode. He frequently founded new *Bazars,* or market towns, and compelled merchants to remove thither; although the place might be quite out of the way by which their trade was usually conducted. From the officers of the *Nabob* of *Arcot,* merchants meet with no annoyance.

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Some of them, being constant traders, take from the custom-houses what they call *Cowl*, or protection; and on that account pay only one half of the duties that are exacted from occasional visitors. A merchant who has this kind of protection, for every 800 *Maunds* of *Betel-nut*, worth about 550*l.* pays to the *Nabob's* custom-houses, on the way between this and *Wallaja-petta*, 33 *Star Pagodas*, or a little more than 12*l.*

Manufactures.

In the country villages much coarse cloth is made by the *Whalliaru* weavers. Those in the town are *Dévángas* and *Shaynigaru*, who make the white cotton cloth with silk borders called *Putaynshina.* They make also the muslins called *Sada Shilla*, and *Dutary*, and white turbans.

Nature of commerce.

Merchants from *Balahari*, *Advany*, *Naragunda*, *Navalagunda*, *Maynashigy*, *Jaliali*, and *Anagiri*, places near the *Krishna* river, bring cotton wool, cotton thread, dark blue cotton cloth, *Terra Japonica*, asafœtida, dates, almonds, and *Mailtuta*, which is used as a dentifrice. The merchants of *Balahari* take back in cash $\frac{3}{4}$ of the returns, and the remainder in castor-oil, *Popli* dye, and *Jagory.* The other merchants take back the whole in cash. The merchants of *Hyder-Nagar* bring *betel-nut*, black-pepper, and sandal-wood. They take back cash, and a little white muslin. Here the merchants of *Seringapatam* purchase cloth with cash. The merchants of *Gubi* bring *betel-nut*, and black-pepper; and take back cloth, and some money. From *Sira* the same articles are brought; the returns are entirely in cloth. From *Bala-pura* are brought sugar, and some cloth fitted for the dress of women. From the lower *Carnatic* the merchants bring salt, and the goods that are imported by sea from Europe, China, Malacca, &c. with a considerable balance of money due for the *betel-nut*, black-pepper, garlick, tamarinds, *Shicai* (fruit of the *Mimosa saponaria*), and grain, that are sent from hence. The silk is all brought from *Bangalore*, and no cotton grows in the country.

Customs of the *Muchaveru.*

In this place are settled a kind of shoe-makers called *Muchaveru*;

they are *Rajputs*, and in their families retain the *Hindustány* language, as having originally come from the country which the Mussulmans call *Agimere*. Like all the persons of an unmixed breed from that country, they pretend to be of the *Kshatriya* cast; but this high rank is denied by the *Bráhmans* to even the highest of the *Rajputs*, those whose profession is agriculture and arms, and who, the *Bráhmans* say, are merely the highest class of the *Súdras*, like the *Nairs* of *Malabar*, or *Káyastas* of *Bengal*. These shoemakers are not allowed to eat nor to intermarry with the *Chitrakaru*, nor with the weavers, who come from the same country; and much less with the *Rajputs* properly so called, who are by cast the cultivators and defenders of the soil. They came into this country with *Cossim Khán*, the general of *Aurungzebe*, and settled chiefly here and at *Sira*. They follow no other profession than that of making shoes. The proper *Gurus* of this cast are the *Vairágis*, who read to them, and receive their charity. The *Panchánga*, or astrologer, attends their marriages, and gives them a kind of *Upadésa*. None of them can read. They are worshippers of *Vishnu*, and do not pray nor offer sacrifices to the *Saktis*, nor to *Dharma Raja*; but contribute their share of the expense at the sacrifices, and festivals, which the village as a public body performs in honour of these gods. They are allowed to eat mutton and fish, but not to drink spirituous liquors. They are allowed to marry several wives, and confine them after the custom of their own country. They have chiefs, who determine matters relating to cast; but their office is not hereditary: they are elected in an assembly of the people.

Customs of the *Telega Uparu*.

The *Telega Uparu* are a tribe of *Telinga* origin, as their name expresses; and retain in their families the language of their original country. They can give no account of the time when they came to *Colar*. Their proper occupation is the building of mud walls, especially those of forts; but some of them are farmers, and some farmers servants, or *Batigaru*; they act also as porters. They have hereditary chiefs called *Ijyamána*, who possess the usual jurisdiction.

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None of them can read or write. They are allowed to eat venison, mutton, fowls, swine, and fish; but cannot avowedly drink spirituous liquors. They are allowed a plurality of wives, who are very laborious, and each costs five *Pagodas* (1 *l.* 16*s.* 7½*d.*), which are presented to her parents. The girls continue to be marriageable after the age of puberty; but a widow cannot take a second husband. They bury the dead. They never take the vow of *Daseri*, or of dedicating themselves to the service of the gods. The god of their cast is *Vishnu*; but they pray to *Dharma Rája*, and offer sacrifices to the *Saktis*. They have no knowledge of a future life, and pray only for temporal blessings. Their *Gurus* are the hereditary chiefs of the *Sri Vaishnavam Bráhmans*, who on the richer part of the cast bestow *Upadésa* and *Chákrantikam*. The *Panchánga*, or astrologer, attends only at marriages.

Smartal Bráhman.

A *Smartal Bráhman*, reckoned a man of learning, but who seems to be very unwilling to open such stores as he possesses, denies all knowledge of the worshippers of *Jain*, *Buddha*, or the *Linga*, farther than that he has heard them mentioned. The doctrines of all other sects, but his own, he considers as contemptible, and not worthy of notice.

He believes in a supreme god called *Náráyana*, or *Para Brahmă*, from whence proceeded *Siva*, *Vishnu*, and *Brahmā*; which still, however, are all the same god. His sect pray to *Siva* and *Vishnu*, with many of their wiyes, children, and attendants, among whom are the *Saktis*, or destructive powers. *Siva*, however, is the principal object of their worship; for they consider him as the most powerful mediator with *Náráyana*, who is rather too much elevated to attend to their personal requests. They abhor bloody sacrifices; but do not reprehend their followers, of the *Súdra* cast, for using that manner of worship. They say, that it is the custom of the *Súdras*; and that what these low people do is of little or no consequence. When a good *Bráhman* dies, his spirit is united to God; but a bad one is first punished in a purgatory, and then by passing

through various other lives, as an animal, or as a person of some of the low casts, till at last he becomes a *Bráhman*, and has another opportunity by his good works of gaining heaven. CHAPTER V. July 8, &c.

Sringa-giri, south from *Hyder Nagar*, is by this person considered as the chief throne of the *Bráhmans*. There God assumed the form of a *Bráhman* named *Sankara Achárya*, and, having become a *Sannyási*, established his *Mata*, or college, at the place at which there has ever since been a succession of *Sannyásis*, who are the *Gurus* of the order, and are called *Swamalus*. In different places of India these have established agents, or deputies, who are also *Sannyásis*, and assume the title of *Swamalu*. Originally these agents were all sent from the college at *Sringa-giri;* but now, although they acknowledge the superiority of the representative of *Sankara Achárya*, they all educate young men in their own *Matas*, or colleges, and from among them appoint their successors. In the chief college at *Sringa-giri* there are many disciples, who are all of *Vaidika* families, who never marry, and who are carefully educated in such learning as the *Bráhmans* possess. They are called *Brahma Cháris;* and from among them the *Guru*, when he is about to die, selects the one that appears to him most deserving, and reveals to him the *Upadésa* peculiar to his rank, by which the favourite becomes his successor. The inferior *Swamalus* (properly *Swámyálu*) educate in a similar manner their successors. Should the *Sringa-giri Swamalu* die without appointing a successor, the deputies or agents assemble, and select from among the *Brahma Cháris* the most deserving person, and, revealing to him the *Upadésa*, constitute him their chief. Till he is on the point of death, a *Swamalu* is very unwilling to deliver the *Upadésa* to a successor; as, immediately on getting possession of it, his power becomes equal to his own; and if he should recover, the new *Swamalu* might remove to another college, and act independent of his authority.

Besides the *Vedas*, and eighteen *Puránas* supposed to have been written by *Vyása*, which are common to all *Bráhmans*, the *Smartal*

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sect follow, as peculiar to themselves, four *Sástrams*, or books, called *Mimása*, *Tarka*, *Vyákaranam*, and *Védánta*, which are said to contain a system of logic, metaphysics, and grammar, that is necessary to explain the doctrine of the *Vêdas;* and the *Sankara Bhashá*, a commentary which explains the doctrine of the *Sutras*.

The *Gurus* of the *Smartal* sect seem to act chiefly in an episcopal capacity; that is, as superintendants of the manners of their followers. They would not appear to perform any ceremony for the sect, which, as being followers of *Siva*, does not admit of *Chakrántikam;* and among the *Smartal*, it is the *Puróhita* who gives *Upadésa.* When a *Smartal* commits any fault, if the *Guru* or his deputy be near, he assembles ten learned men of the sect, and with their advice punishes the delinquent. If, however, the fault be of such a nature as to deserve excommunication, which is the highest punishment, the *Guru* must for the purpose assemble a *Trimatasteru*, or council composed of the most learned men of the three sects, *Smartal*, *A'ayngar*, and *Madual*. These councils may be held, and may punish delinquents, without the presence of either *Guru*, or deputy. The faults that occasion a loss of cast, and for which no pardon can be given, are, I. Sexual intercourse within the prohibited degree of consanguinity. II. Sexual intercourse with any prohibited cast. III. Eating forbidden food, or drinking intoxicating liquors. IV. Stealing. V. Slaying of any animal of the cow kind, or of the human species; but a *Bráhman* is permitted to kill his enemy in battle. VI. Eating in company with persons of another cast, or of food dressed by their impure hands. VII. Eating on board a ship food that has been dressed there. VIII. Omitting to perform the ceremonies due to their deceased parents. For smaller offences, the *Guru* or his deputies punish in various ways; by commanding pilgrimages, or fasts; by fines; by holding burning straw to the body of the delinquent, which is sometimes done with such severity as to occasion death; by shaving the head, so as to occasion a temporary separation from the cast; and by giving large

draughts of cow's urine, which is supposed to have the power of washing away sin. Ordeals are also in use; and a most barbarous one is applied to those who, having had sexual intercourse with a person of another cast, allege that it was by mistake. If the criminal be a woman, melted lead is poured into her private parts; if it be a man, a red hot iron is thrust up. Should they be innocent, it is supposed that they will not be injured. A male *Bráhman*, however, even if married, may with impunity have connection with a dancing-girl, all of whom in this country are dedicated to the service of some temple.

The low casts, that are followers of the *Smartal Bráhmans*, seem to engage very little of the *Guru's* attention. They occasionally give them holy water, and the ashes of cow-dung to make the mark of *Siva* on their foreheads, and receive their contributions; but they leave the punishment of all their transgressions against the rules of cast to their own hereditary chiefs; at whose desire, however, they reprimand and impose fines on obstinate offenders. They seem to have no wish to constrain o her casts to any particular dogmas, or mode of worship: the only thing, they think, in which a *Súdra* ought to be instructed to believe, is, that the *Bráhmans* are infinitely his superiors; and that the only means of gaining the favour of the gods is by giving them charity. With regard to all sects that refuse to acknowledge these grand doctrines, and even among themselves concerning points of faith, no men can be more intolerant, nor violent.

If the fines imposed by a *Guru* appear to his council to be immoderate, they have the power to reduce the amount. If any one offers charity, that, considering the man's circumstances, the *Guru* thinks too small, he has no power to extort more; but he may reprimand the person for his want of the great virtue of charity.

Great division of the *Br hmans* into northern and southern.

This man says, that the *Bráhmans* are separated into two great divisions; one of which occupies the countries toward the south, and the other the countries toward the north. He holds in great

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contempt those from *Kási* or *Benares*, as being men from the north; and would not even admit them to the honour of eating in his house. These *Bráhmans*, he says, eat fish, offer bloody sacrifices, and commit other similar abominations. The northern *Bráhmans* are, however, at least as proud as those from the south, and allege several reasons for holding them in contempt; among which the most urgent is, that the women of the southern *Bráhmans* are allowed to appear in public.

General customs of the southern division of the *Bráhmans*.

None of the southern *Bráhmans* can, without losing cast, taste animal food, or drink spirituous liquors; and they look upon the smoking of tobacco as disgraceful. All those who have been married are burned after their death, and their wives ought to accompany them on the pile; but this custom has fallen very much into disuse, and instances of it are extremely rare; whereas in *Bengal* it still continues to be common. A woman can on no account take a second husband; and, unless she is married before the signs of puberty appear, she is ever afterwards considered as impure. They are not at all confined, and can be divorced for no other cause than adultery. When a *Bráhman* divorces his wife, he performs the same ceremonies for her, as if she had died.

Subdivision into nations.

Although all the southern *Bráhmans* can eat together, yet they are divided into nations, that never intermarry; and, although they have long been living intermixed, they generally retain in their families the language of the country from whence they originally came.

Subdivision according to offices.

Each nation has its *Vaidika*, who subsist by charity, and dedicate their lives to study and devotion; its *Lokika*, who follow worldly pursuits; and its *Numbi*, or priests who officiate in temples, and debase themselves by receiving monthly wages, and by performing menial duties to the idols. The *Lokika* and *Vaidika* may intermarry; but, in accepting of his daughter for a wife, a poor *Vaidika* does honour to the greatest officer of government; and still more in giving him a daughter in marriage. The *Lokika* are never admitted

to become *Sannyásis;* this, however, is not considered as arising from any invincible rule of cast, but only from their want of the proper qualifications.

Subdivision into sects.

Each nation again is divided into the sects of *Smartal, A'ayngar,* or *Sri Vaishnavam,* and *Madual;* but in one nation one sect is more prevalent than in another. A difference of sect does not properly constitute a difference of cast; as the son of a *Smartal* may become a worshipper of *Vishnu;* and, on the contrary, an *A'ayngar* may become a follower of the *Sringa-giri* college; but such changes are not common. The *Smartal* and *Madual* eat together, and intermarry, although the one worships *Siva* and the other *Vishnu;* and on such occasions the woman always adopts the religion of her husband, which seems to be a proof of a great degradation of the sex, who are not considered as worthy to form an opinion of their own on a point of this importance. The *Sri Vaishnavam* or *A'ayngar* will not marry, nor eat with a *Madual,* although they both worship *Vishnu;* and still less will they have any communication with a *Smartal;* which arises, however, not from any difference in cast, but from a hatred to the doctrines entertained by these sects.

Division of *Bráhmans* into families, or *Gótrams.*

The *Bráhmans* of every nation are divided into certain families, called *Gótrams;* and a man and woman of the same family never marry together. The connection of *Gótram* is entirely in the male line; and the *Bráhmans* who speak English translate it by our word cousin, and sometimes by brother, or, what is analogous to it, by the Mussulman word *Bhai.* The son of their mother's sister they consider as a more distant relation than any person of the same *Gótram.*

July 12. *Calura.*

12th *July.*—In the morning I went four cosses to *Calura,* said to be the residence of an *Amildar;* but in the list of *Talucs,* or districts, which I procured from the revenue officer at *Seringapatam,* I see no such place mentioned. In all probability, therefore, it is only a subdivision called a *Hobly,* and its chief, in order to augment his importance, calls himself to me an *Amildar.* He has retained his station

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for thirty years, and has acquired a name by digging a *Colam*, or tank. It is about half a mile from the town, is surrounded by a fine *Mango* grove; and the road from it to the town has on each side a raised walk, with an avenue of *Mango* and tamarind trees reaching the whole way.

Appearance of the country.

For more than one half the way from *Colar* the country is at present entirely depopulated. Formerly there has been much cultivation; and the broken fragments of the hedges by which the dry fields were inclosed remain, to show its once flourishing state. The remainder of the country is in a better condition; but at least one half of what has been formerly cultivated is now waste. I here passed two large villages well fortified with mud walls, and surrounded by strong hedges. The country contains many detached, naked, rocky hills; and many places seem to be fit for palm gardens, of which however I saw none. The mist frequently rests on the tops of the hills, while the country below is clear.

Customs of the *Woddaru*.

The *Woddas*, or *Woddaru*, are a tribe of *Telinga* origin, and in their families retain that language, although they are scattered all over the countries where the *Tamul* and *Karnátaca* tongues are prevalent. They dig canals, wells, and tanks; build dams and reservoirs; make roads; and trade in salt, and grain. Some of them are farmers, but they never hire themselves out as *Batigaru*, or servants employed in agriculture. Some of them build mud-houses; but this is not a proper occupation for persons of their cast. The old and infirm live in huts near villages, and dig and repair tanks, or wells, or perform other such labour; while the vigorous youth of both sexes travel about in caravans with oxen and asses, in pursuit of trade. In these caravans they carry with them all their infants, and their huts, which latter consist of a few sticks and mats. They follow armies to supply them with grain, and in the time of peace take to the lower *Carnatic* grain, *Jagory*, and tamarinds, and bring up salt. In *Hyder's* government they were very numerous; but, having been forced by *Tippoo* to work at his forts without adequate pay, a great number of

of them retired to other countries. As they are a very useful set of people, they are now encouraged, and are fast returning. There are no distinctions among them that prevent intermarriages, or eating in common. They eat fowls, sheep, goats, swine, rats, and fish; but reject carrion. They are allowed to take all manner of things that intoxicate, and are in fact much addicted to spirituous liquors. They marry as many wives as they can get, and the women seem to be more numerous than the men, as no person is without one wife, and the generality have two; several go so far as eight. A man is in general more restricted from taking many wives by the expense of the ceremony, than by any difficulty in supporting the family; as the women are so industrious, that the more wives he can get, the more he lives at his ease. A lazy woman is immediately divorced by her husband; but, if she can find a man willing to take her, she is at liberty to marry again. The girls continue marriageable from seven years of age, until their death; and a widow is not prevented from taking another husband. Formerly, when the cast was richer, a man gave a hundred *Fanams* (3*l.* 7*s.* 1*d.*) to the parents of the girl whom he wanted to marry; but this is now reduced to two *Fanams* (1*s.* 4*d.*) to the father, a piece of cloth to the mother, and a hundred coco-nuts as emblematical of the original price. The marriages are made in an assembly of the tribe; and the ceremony consists in the bridegroom and bride walking thrice round a stake, which is erected for the purpose. Next morning they give another feast, and present the company with *betel.* The *Panchánga*, or astrologer, does not attend, nor are there any prayers (*Mantrams*) read on the occasion. In case of adultery, the custom of the cast is to put the woman to death; but this severity is not always used. In case of a man's treating his wife very harshly, she may retire to her mother's house, and live there; but, without his consenting to divorce her, she cannot marry again. The custom of the cast is to bury the dead; and, although the women are very harshly used by their husbands while drunk, and although widows are not

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prevented from marrying again, yet it is said, that perhaps one widow in a hundred throws herself into a pit filled with fire, and burns herself near the grave of her husband. The *Bráhmans* do not officiate at funerals; but on those occasions money is distributed among them and other mendicants.

The *Guru* of the cast is *Tata Achárya*, one of the hereditary chiefs of the *Sri Vaishnavam Bráhmans*, who lives at *Penu-conda*. They go either to him, or to some of his relations, who live in different parts of the country, and receive *Chakrántikam*, and advice to wear the marks of the god *Vishnu;* and, according to their abilities, give, in return, from one to three *Fanams*. They are allowed to attend at the festivals of the great gods, although their claim to be of a *Súdra*, or pure descent, is rather doubtful. Many of them can read and write accompts; but they attempt no higher kind of learning. Although the *Woddaru* pray to *Vishnu*, and offer sacrifices to *Marima*, *Gungoma*, *Virapaeshima*, *Durgama*, *Putalima*, and *Mutialima*, yet the proper object of worship belonging to the cast is a goddess called *Yellama*, one of the destroying spirits. The image is carried constantly with their baggage; and in her honour there is an annual feast, which lasts three days. On this occasion they build a shed, under which they place the image, and one of the tribe officiates as priest, or *Pújári*. For these three days offerings of brandy, *palm-wine*, rice, and flowers are made to the idol, and bloody sacrifices are performed before the shed. The *Woddas* abstain from eating the bodies of the animals sacrificed to their own deity; but eat those which they sacrifice to the other *Saktis*. This cast frequently vow *Daséri*, or dedicate themselves to the service of God; which does not prevent from trading those who are rich or industrious; those who are idle live entirely by begging. The duty of a *Daséri* requires that he should daily wash his head, and take care, when he eats in company with the profane, that their victuals do not intermix with his. On Saturday night, after having washed his head, and prayed for some hours, he must cook

his victuals in a clean pot. He learns by rote a set form of prayer in the poetical language, or *Andray;* and while he repeats it, he rings a bell, and at intervals blows on a conch. The hereditary chiefs of this cast possess the usual jurisdiction. The fines imposed by them never exceed three *Fanams* (two shillings,) and three coco-nuts; and are always expended on drink.

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Customs of the *Whallias.*

The *Whallias,* or *Whalliaru,* by the mussulmans called also *Dædh,* and *Ballagai jat,* as forming the most active combatants on the right hand side, are nearly the same with the *Parriar* of the people who speak the *Tamul* language, and with the *Maliwanlu* of those who use the *Telinga* dialect. Like the *Brahmans,* the *Whallias* of all nations can eat together; but two persons of different countries never intermarry. Although this cast be looked upon as the very lowest of all others, they are desirous of keeping up the purity of the breed; and never marry but with the daughters of families, with whose descent, from long vicinity, they are well acquainted. Like the *Sudra,* they are divided into several ranks that do not intermarry. The highest are here called *Morasu Whalliaru,* and are cultivators of the ground, weavers, and smelters of iron ore. Inferior to these are *Maligara Whalliaru,* or musicians; *Naindaru Whalliaru,* or barbers; and *Asaga Whalliaru,* or washermen. These again are quite distinct from the musicians, barbers, and washermen of the pure tribes, who, though lower than the cultivators, are all of *Súdra* cast. All the different ranks of *Whalliaru,* though they do not intermarry, eat together, and join in their public ceremonies. The *Whalliaru* are not permitted to build their huts within the walls of towns or villages; but, if there be any hedge, they generally inhabit between it and the ditch. In very large places their huts form streets, and into these a *Bráhman* will not deign to put his foot; nor in a place so impure will a *Súdra* build his house; in like manner as a *Bráhman* is very unwilling to occupy a house in a street which the *Súdra* inhabit. A *Bráhman,* if he be touched by a *Whallia,* must wash his head, and get a new thread; and a *Súdra,*

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who has been similarly defiled, is obliged to wash his head. A *Bráhman* of this country will not give any thing out of his hand to persons of lower birth, of whom he is not afraid; but throws it down on the ground for them to take up. He will receive any thing from the hand of a person of a pure descent; but when a *Whallia* delivers any thing to the *Bráhman*, he must lay it on the ground, and retire to a proper distance, before the *Bráhman* will deign to approach. Europeans, from their eating beef, are looked upon by the natives here as a kind of *Whalliaru;* and nothing but the fear of correction prevents them from being treated with the same insolence.

Morasu Whallias.

The proper business of the division of *Whalliaru*, called *Morasu*, is the cultivation of the ground, in which both men and women are very industrious; but they do not appear to have ever formed a part of the native militia, like the *Súdra* cultivators, nor to have been entrusted with arms, until they began to enter into the Company's service. From among them several families hold, by hereditary right, the low village offices of *Toti* and *Nirgunty*, or of watchmen and conductors of water. Some few of the cultivators are farmers; but by far the greater part are yearly servants or *Batigaru*. Some of them weave coarse cloth, and some smelt iron ore. They have chiefs called *Gotugaru*, who, with a council as usual, settle all disputes and matters of cast.

The *Guru* of the *Whallias* is called *Kempa Nullari Einaru*, and lives at *Tripathi*. He is married, and wears the mark of *Vishnu*. They do not know of what cast he is; but he does not intermarry with the *Whalliaru;* and my interpreter says, that the *Gurus* of this low tribe are all of the people called here *Satánana*. The *Guru* occasionally comes round, lives in the huts of his followers, and receives their contributions. He puts the mark of *Vishnu* on their foreheads, and exhorts them to pray to that god, and to those of his family. They have no priest that attends at births, marriages, burials, nor at the ceremonies performed in honour of their deceased

parents; nor do they ever receive *Upadésa* or *Chakrántikam.* They pray to *Dharma Raja*, and offer sacrifices to *Marima*, *Caragadumma*, and *Gungoma.* The *Pújári*, or priest, who officiates in the temple of this last destructive spirit, is a *Whallia;* and her's are the only temples into which any of this tribe are ever admitted. They eat the sacrifices offered even to this deity, peculiar to their cast. Their *Guru* never joins in any of these sacrifices; none of them can read or write. They are allowed to drink spirituous liquors, and to eat beef, pork, mutton, fowls, and fish; nor have they any objection to eat an animal that has died a natural death. Their marriage ceremony consists in a feast, at which the bridegroom ties the bridal ornaments round the neck of his mistress. Except for adultery, a man cannot divorce his wife; and if she has children, he cannot during her life take another; but if a man, in a reasonable time after marriage, have no children by his first wife, he may take a second. Widows are not permitted to marry again; but it is not expected that they should burn themselves, nor preserve celibacy with great exactitude. Many of this cast take the vow of *Daseri.*

Customs of the *Togotas.*

The *Togotas*, or *Togotaru*, are a class of weavers of *Telinga* origin, and in their families retain that language. They follow no other trade than weaving, and have hereditary chiefs called *Jjyamána*, who possess the usual authority. Many of them can read and write accompts; but none attempt any higher kind of learning. Idle, stupid fellows, that cannot get a living by their industry, take the vow of *Daséri*, and go about praying with a bell and conch. They have no tradition concerning the time when they came into this country. They all eat together, but intermarry only with such families, as by long acquaintance know the purity of each other's descent. They cannot lawfully drink spirituous liquors, but can eat fish, fowls, and mutton. It must be observed, that, throughout the southern parts of India, fowls are a common article of diet with the lower casts; whereas in Bengal, their use is confined entirely to Mussulmans. In Bengal again, ducks and geese are com-

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monly used by the *Hindus;* but in the southern parts of India, these birds are not at all domesticated, except by Europeans. It is not usual for the weavers of this cast to take more than one wife, unless the first prove barren; but there is no law to prevent them from taking as many as they please. Parents that are poor, take money for their daughters, when they give them in marriage; those that are in easy circumstances do not. Widows cannot marry again, but are not expected to kill themselves. A woman can only be divorced for adultery. The *Gurus* of these weavers are hereditary chiefs of the *Aáyngar,* who, in return for the contributions of their followers, bestow *Upadésa* and *Chakrántikam;* of course they are worshippers of *Vishnu.* The *Panchánga,* or village astrologer, whether he be a follower of that God, or of *Siva,* attends at births, marriages, funerals, at the ceremonies performed in honour of their deceased parents, and at the building of a new house; and on each occasion gets a fee of one *fanam,* or eight-pence. On other occasions, when a weaver wants to pray, like other *Súdra,* he calls in a *Satánana,* who reads something in an unknown language, and gives the votary some holy water, which he consecrates by pouring it on the head of a small image that he carries about for the purpose. A similar ceremony when performed by a *Bráhman,* from the charity that accompanies it, is called *Dhana,* and is supposed to be much more efficacious in procuring the favour of the gods.

Appearance of the country.

13th July. In the morning I went three *cosses* from *Calura* to *Silagutta.* The rains having become heavy, the people are now busy sowing their *Ragy.* The showers are frequent, and the winds from the westward are strong. A great part of the country is overgrown with stunted bushes, even where the soil appears to be tolerably good, and has never been in a state of cultivation. Perhaps one half is rated in *Krishna Ráyalu's* accompts, and of that two thirds may be in actual cultivation; for the country is in a better state than that through which I passed yesterday. It does not contain so many small rocky hills; but I have in front, *Nandi-durga;* on my

right, *Rymabad*, or *Rymangur;* on my left *Chintamony;* and on my rear, *Ambaji-durga*. By the way I passed three large villages, all strongly fortified with mud walls and hedges.

Silagutta.

Silagutta is a town containing about five hundred houses, several of which are occupied by weavers. It formerly belonged to a family of *Polygars*, named *Narayana*, who possessed *Devund-hully* (corrupted into *Deonelly*), *Nandi-durga*, and the two *Bala-puras*. The country around is the prettiest of any that I have seen above the *Ghats*. It has two fine tanks, like small lakes; and their banks are covered with gardens. At a distance it is surrounded by hills occupied by *durgas*, or hill-forts, of which five are in sight.

Seasons of the central parts of the peninsula.

I assembled here some intelligent *Panchángas*, or astrologers, and farmers, and procured from them the following account of the prevailing seasons; which may be considered as applicable to the north-eastern, and middle parts of the dominions of the *Mysore Rája*.

The almanacs divide the year into three equal portions, called *Candaia;* and each of these again is divided into two *Ritugalu*, or seasons, of which each contains two months. The names of these seasons having been taken from the climate of a country not entirely similar to this, are not always applicable to the seasons of this place. They are, I. *Vasanta Ritu*, or spring season; which contains *Chaitra* and *Vaisáka*, or this year from the 26th of March to the 23d of May. In this the trees flower, the weather is hot and clear, with very gentle winds from the westward. There are occasional showers of rain, or hail, but they are not accompanied by squalls of wind. II. *Gríshma Ritu*, or the scorching season, includes *Iyaishtha* and *Asháda*, or in this year from the 24th of May to the 21st of July. The air is rendered cool by clouds, and strong westerly winds. The rains are heavier than in *Vasanta*, but are not at their height. Thunder is common, but not very severe. III. *Varshá Ritu*, or the rainy season, comprehends *Srávana* and *Bhadrapada*, or from the 22d of July to the 18th of September.

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At this season the rains ought to be very heavy, and the air to be cool, with frequent and violent thunder and lightning. The winds are westerly, and from the middle of *Asháda* to the middle of *Srávana*, or about our month of July, are very violent; afterwards they abate. IV. *Aswaja* and *Kartika* form *Sarat Ritu*, which this year extends from the 19th of September to the 16th of November. At this season there are long falls of rain; but it is not very heavy, and there are considerable intervals of fair weather. The winds are light, and come from the northward. During the rain, to the feelings of the natives, the air is very cold; in the intervals it is temperate. The thunder is moderate. V. *Hémanta Ritu*, or the season of dew, comprehends *Márgasirsha* and *Paushya*, or from the 16th of November to the 14th of January. At this season there is no rain, but there are heavy dews; and thick fogs obscure the sun, and render the air very cold. The winds are moderate, and come from the northward. VI. *Sayshu Ritu*, or the season of moonshine, comprehends *Mága* and *Phálguna*, or from about the middle of January to the middle of March. There are sometimes slight showers, but the weather is in general dry and clear, with very little dew. The winds are light, and come from the eastward. The warm season commences; but the heat, according to the sensation of the natives, continues moderate. This is the season of the principal rice harvest. The air is most unhealthy, and occasions most fevers, during the first and last seasons, or in the hot and dry weather. By the natives this country is esteemed very healthy; they acknowledge, however, that the air of the *durgas* is very bad.

Customs of the *Morasu*, properly so called.

The *Morasu* are an original tribe of *Karnata*, who are admitted by all parties to be *Súdra*, and who, as being cultivators of the land, are called *Woculigaru;* which by the *Mussulmans* has been shortened into *Wocul.* In the two *Bala-pura* districts they are very numerous, and formed a part of the native foot militia, called in this language *Candashara.* They are cultivators of the ground,

both as masters and servants, and occasionally hire themselves as porters. They form three tribes; *Morasu,* properly so called, *Morasu Moscu,* and *Teliga Morasu,* which last would appear from the name to be a tribe of the *Telingana* nation. These tribes eat together, but do not intermarry; and even in each tribe persons confine their marriages to a few families, whose descent is known to be pure. My informants are of the *Morasu,* properly so called, and must be distinguished from the impure tribe called Morasu Whallias, who are not *Súdra.*

The men of this tribe, but not the women, can eat with those of another tribe of cultivators called *Sadru.* A principal object of worship with this cast is an image called *Kála-Bhairava,* which signifies the black dog. The temple is at *Sitibutta,* near *Calanore,* about three *cosses* east from hence. The place being very dark, and the votaries being admitted no farther than the door, they are not sure of the form of the image; but believe, that it represents a man on horseback. The god is supposed to be one of the destroying powers, and his wrath is appeased by bloody sacrifices. The throats of goats and sheep are cut before the door of the temple as sacrifices, and the flesh is boiled for a feast to the votaries. In this the priest, or *Pujari,* never partakes. He is a *Satánana,* and worships the god by offerings of flowers and fruit. He, as usual, consecrates water by pouring it over the head of the image, and afterwards sells it to the votaries. At this temple a very singular offering is made. When a woman is from 15 to 20 years of age, and has borne some children, terrified lest the angry deity should deprive her of her infants, she goes to the temple, and, as an offering to appease his wrath, cuts off one or two of her fingers of the right hand. To the destructive female spirits called *Gungoma, Yellama, Marima,* and *Putalima,* the *Morasu* offer sacrifices. They do not pray to either *Vishnu,* or *Siva.* None of them here have ever seen a *Guru* belonging to their cast; but they have heard, that about the time of their birth (about 50 years ago), a

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Sri Vaishnavam Bráhman came to the place, and was called their *Guru.* The *Panchánga* acts as their *Puróhita* at marriages, and at the ceremonies performed, both annually, and at the new moons, in commemoration of their deceased parents. The *Bráhmans,* when they subjugated the different rude tribes in the south of India, seem to have made very little difficulty about religious opinions and customs. Every tribe seems to have retained their own; and the *Bráhmans* were contented with an acknowledgment of their authority, and with contributions given for the performance of certain ceremonies, much connected with astrology and magic; by pretensions to which their power was probably extended. They themselves have perhaps been influenced by the superstitions of their converts, whose gods, being malignant spirits, they adopted as servants of *Iswara,* the power of destruction. The *Bráhmans,* when in sickness and distress, invoke with fear and trembling the power of *Bhairava,* and of the female *Saktis;* who were formerly, perhaps, considered by the natives as the malignant spirits of the woods, mountains, and rivers; and worshipped by sacrifices, like the gods of the rude tribes which now inhabit the hilly region east from Bengal, and whose poverty has hitherto prevented the incursions of the sacred orders of their more learned western neighbours.

None of the *Morasu* can read or write; and they never take the vow of *Daséri.* They believe in transmigration as a state of reward and punishment, and of course believe in the immortality of the soul; which, so far as I can learn, is not in this country an universal belief among the lower casts, nor among the rude tribes who inhabit the hills. They have hereditary chiefs, called *Gauda.* The present possessor of that rank here is a boy. He is brought into the assembly, and sits there, while the heads of families settle all disputes, and punish all transgressions against the rules of cast. It is lawful for a *Morasu* to eat every kind of animal food, except beef and carrion. They are prohibited from drinking spirituous

liquors. The men are allowed polygamy, but, except for adultery, cannot divorce their wives. The women spin, work in the fields, and are very industrious. Widows cannot marry again, but are not expected to bury themselves alive with their husbands bodies.

Customs of the *Siva Bheri*, who follow the *Bráhmans*.

I have formerly mentioned, that the tribe called *Bheri*, or *Nagaratra*, is divided into two sects; of which one worships *Vishnu*, and the other *Siva*. The doctrines of the former have been already explained. Those who worship *Siva* are subdivided again into two parties; of which the one wears the *Linga*, and the other does not. These last I have now assembled: they say, that they are of the *Vaisya*, or third pure cast; but this is denied by the *Comaties* and *Bráhmans*. They despise the oil-makers, who call themselves *Nagaratra*, as being greatly their inferiours. They neither eat, intermarry, nor have common hereditary chiefs with the *Vishnu Nagaratra*. They are a tribe of *Karnata* descent; and are dealers in bullion, cloth, cotton, drugs, and grain. Some of them act as porters; but they never formed any part of the militia, nor cultivated the ground, nor followed any handicraft trade. They cannot lawfully eat any kind of animal food, nor drink spirituous liquors. They have a knowledge of accompts, but attempt no higher kind of learning. They are allowed many wives, but do not shut them up; nor can they divorce them for any cause except adultery. In order to preserve the purity of the cast, they intermarry with such families only, as their forefathers have been accustomed to do. They burn the dead; but the widows are not expected to burn themselves. They do not wear the *Linga;* but pray to *Siva*, alleging *Vishnu* to be the same. They never offer bloody sacrifices to *Marima*, nor to any other of the *Saktis*. They never take the vow of *Daséri;* but, when in sickness or danger, make mental vows to *Vencaty Rámana*, the idol at *Tripathi*, or to the *Siva* at *Nunjinagodu;* and promise, in case of being saved, to feed a certain number of *Bráhmans*, or to send a sum of money to these temples.

The proper *Guru* of this cast is a *Smartal Bráhman*, called *Dharma*

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Siva Achárya; who resides at *Kunji*, and whose office is hereditary: but in affairs relating to the left-hand-side they are subject to *Munaiswara Swámi*, who is the *Guru* of that division of this tribe which wears the *Linga. Dharma Siva Achárya* bestows holy water on his followers, and receives their contributions under the name of charity. A certain sum is paid for each public ceremony, and another is given for holy water. Once in four or five years this personage comes, and receives the sums that have been collected for him at the different villages. On these occasions he punishes any of his followers who may have been guilty of a transgression of the rules of cast, and there is no slighter punishment than excommunication; but he cannot inflict this without the consent of the heads of the cast assembled in council.

The *Panchánga*, or village astrologer, acts as *Puróhita* at marriages, funerals, births, on the building of a new house, and at the ceremonies performed monthly and annually in honour of deceased parents. On these occasions the *Puróhita* reads prayers in the *Sanskrit* language. The *Nagaratra* endeavours to repeat after him; but it being an unknown tongue he seldom is able to proceed farther than a few of the first words, and then must hearken quietly to the remainder, as the *Bráhman* does not choose to pronounce it leisurely, or at least distinctly. He is indeed seldom able to read fluently; and all intervals are filled up by a repetition of the last word, accompanied by a most sonorous nasal twang, which is continued until he is able to make out the following word. This kind of unintelligible cant is, however, preferred greatly to all prayers that are pronounced in the vulgar tongue; which, indeed, are considered as of little or no efficacy, especially if they are extemporary.

Gardeners of the *Teliga Banijigas.*

There is here a tribe of *Teliga Banijigas*, who follow no other profession than that of gardeners. They allow themselves to be inferior to those who are merchants, or farmers; but pretend to be superior to the weavers of sackcloth. In their families they

retain the *Telinga* language, and follow the usual ceremonies of the *Súdra*, who have the *Sri Vaishnavam Bráhmans* as their *Gurus*. By these teachers they are kept in a most beastly state of ignorance, nor could they give me a rational answer to any question that I proposed relative to their customs. They are, however, very active and skilful in their business.

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Customs of the *Satánana*, or *Vaishnavam*.

The people, who here are commonly called *Satánana*, call themselves *Vaishnavam*, as being the very chief of the worshippers of *Vishnu*, an honour to which no other cast seems to think them entitled. The *Bráhmans* allege that they are *Súdra*; but this title is rejected with scorn by the *Vaishnavam*, although they have received the *Bráhmans* as their *Gurus*. The *Vaishnavam* seem to be the same tribe with those called *Boistum* in Bengal; but it must be confessed, that many of the rules of the two casts are very different; yet perhaps not more so, than the rules observed by the *Bráhmans* of the two countries. The *Bráhmans* evidently entertain a jealousy of the *Vaishnavam*, and endeavour to render them as ridiculous as possible; for their profession approaches too near to that of the sacred order. I am inclined to suspect, that they are the remains of a very extensive priesthood, who formerly held the same station with respect to the *Whalliaru*, that the *Bráhmans* do now to the *Súdra*, and who with their followers formed the heretical sect called *Vaishnavam*. This would be cleared up, perhaps, by a conversation with a sect called the *Válmika Satánana*, who are said to be the proper *Gurus* of the *Parriar* below the *Ghats*: but I have not had an opportunity of investigating this matter.

The *Satánana* are divided into two sects besides the *Válmika*. Both contend for a priority of rank; and they neither intermarry, nor eat in common. If we were to judge by the circumstances that give rank to *Bráhmans*, the *Tricoveluru Satánana* ought to be the highest; but the other class call themselves *Pratama*, or first. They are also called *Coil Satánana*, as being a kind of officiating priests in the temples.

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Tricoveluru Satánana.

The *Tricoveluru Satánana*, in order to procure worldly enjoyment, act as schoolmasters to instruct the youth in the reading and writing, both of *Sanskrit* and of the vulgar languages; and also in music, both vocal and instrumental. Some also, who are rich, become farmers. The proper manner, however, in which they ought to subsist, is by begging; and by this rejection of worldly enjoyment, like the *Bráhmans*, they expect in a future state to obtain a high reward. They intermarry, and eat among one another, without any distinction of family, learning, or profession; and have no objection to a man of any nation, provided he can show that he is a *Satánana*. The *Bráhmans* allege, that on such occasions they are not very scrupulous in their inquiries. They have hereditary chiefs, who with the assistance of a council settle disputes, and punish delinquents. They are not allowed to take animal food, nor spirituous liquors. Here they bury, below the *Ghats* they burn, the dead. They are allowed two wives, who can only be divorced for adultery. Their native language is the *Telinga;* yet the book peculiar to the cast is in the poetical language of the *Tamul* nation. This they call the *Védam;* but the *Bráhmans* call it *Trivéda Prabandam*. They allege, that they read the eighteen *Puránas;* but this the *Bráhmans* deny. They worship *Vishnu* by set forms of prayer; but address *Siva* only mentally, or by extemporary petitions, when they consider themselves in danger from his destructive power. They never worship in any manner *Dharma Rája, Marima, Putalima,* or any other of the *Saktis*. None of them take the vow of *Dáséri;* but some assume a life of celibacy, and live entirely by begging. In this case, they never cut their hair, and are called *Ekángi*. They cannot assume this order, without some ceremonies having been performed by their *Gurus*, who are both the *Sannyásis* and the hereditary chiefs of the *Sri Vaishnavam Bráhmans*. These confer *Upadésa* and *Chakrántikam* without reward, and at the same time give the *Satánana* a dinner; which, as being a kind of charity, is rather an acknowledgment of the *Bráhman's* inferiority; the person who receives

the charity being, in this country, considered as of a higher rank than the donor. By charity here must always be understood something given to a person asking for it in the name of God, as having dedicated himself to a religious life. Alms given to the necessitous poor, and infirm, are received with great thankfulness, such persons being very numerous above the *Ghats*.

Pratama Satánana.

In the *Tamul* language, the *Satánana* are called *Satany*. Those who serve in temples, and who are thence called *Coil*, on account of their assumed superiority, take the name of *Pratama*. They say, that their proper office is that of *Pujári* in the temples of *Vishnu*, and of the gods of his family. The *Pujá* consists in chaunting some prayers, and pouring some water over the head of the image, and thus making what they call holy water; which is distributed among the people to drink, and to pour on their heads when they pray. As the image is always well rubbed with oil, the water impregnated with this forms no pleasant beverage; but that renders the drinking of it more meritorious. The prayers used by the *Pratama Satany*, on such occasions, are in the *Tamul* language; and although the holy water consecrated by them is good enough for the *Súdra*, it is of no use to a *Bráhman*, who in his ceremonies can employ such only as has been consecrated by a *Bráhman Pujári*. The *Satany* adorns the image with flowers, cloths, and jewels, and anoints it with oil. They and the *Bráhmans* who are in the service of the temple are the only persons that may touch the image; they therefore perform all the menial offices about the shrine, and place the images on their chariots, or beasts of carriage, when they are going in procession. The *Súdra* are only permitted to drag the ropes by which the carriage is drawn. A few of this kind of *Vaishnavam* are farmers, and some are employed to cultivate flower gardens, especially those which are reserved for the use of temples. Many of them obtain permission from their *Guru*, and by receiving a new *Upadésa* become *Ekángi*, assume a red or yellow dress, and, leading a life of celibacy, support themselves by begging. They never

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take the vow of *Dásêri.* Their native language is the *Telinga;* but their cast book is the *Trivêda Prabandam,* and they can also read *Slókams* or verses in *Sanskrit.* They neither eat animal food nor drink spirituous liquors. They burn the dead, and their widows ought to burn themselves; but this custom has become entirely obsolete. Widows, and girls above the age of ten, are not marriageable. The men are allowed many wives; but do not shut them up, nor divorce them for any cause except adultery. Like those of the *Bráhmans,* the women of the *Satánana* never spin, nor follow any productive industry; but they bring water for domestic purposes, and cook the family provisions. The *Pratama Vaishnavam* are all equal, and can all intermarry and eat in common. The hereditary chief of all those in this neighbourhood resides at *Mansunipulla,* and, with a council as usual, possesses a jurisdiction both civil and criminal. Their *Guru* is *Puttara Achárya,* one of the hereditary chiefs of the *Aayngar Bráhmans.* He bestows on them *Upadêsa* and *Chakrántikam;* and on these occasions expects charity. They pray only to *Vishnu* and to the gods of his family, and abhor the worship of *Siva,* or of his followers the *Saktis.*

July 14.

Commerce of *Silagutta.*

14th *July.*—For *betel nut* and black pepper the merchants of *Silagutta* go to *Codeal* and *Nagara.* They carry with them some of the cloths that are manufactured in this country, and some tobacco which grows in the neighbourhood. Sometimes they are obliged to carry cash for a part of their cargo. They dispose of the greater portion of their pepper and *betel* at *Wallaja-petta,* and of a little at the intermediate towns. From the lower *Carnatic* they again bring back raw silk, and other goods imported at *Madras* by sea. The silk they sell partly at *Bangalore,* and partly to the people from *Balahari, Advany,* and other places, who bring hither cotton-wool. These merchants take back raw silk, spices, and benjamin; but never to more than one half, and generally not to more than one quarter, of the value of the cotton-wool, the thread, and the blankets, that they bring. The merchants of *Silagutta* go to a town in

the *Nizam's* dominions, which is called *Rajawully*, and is situated on this side of the *Tungabhadra*; and from thence they bring silk and cotton cloths, which they sell either at home or in the neighbouring towns as far as *Bangalore*. This trade is carried on entirely with ready money.

Manufactures.

The cotton cloths made at *Silagutta* are of the kind called *Sada Shillay*, and are of a coarse quality. They sometimes have red borders. The weavers are of the cast called *Padma Shalay*, and by no means numerous. The cloth exported is chiefly the very coarse kind that is made by the low cast called *Whalliaru*, and is collected from the neighbouring villages. Its price is from 4 to 12 *Fanams*, or from 2*s.* 8$\frac{1}{4}$*d.* to 8*s.* 0$\frac{3}{4}$*d.* a piece. Those which sell at the last mentioned price are 28 cubits long and 1$\frac{3}{4}$ broad, and in fabric resemble the *Caſtas* of Bengal. They appear to me to be a good and a cheap manufacture. When any considerable quantity is wanted, advances are made by the merchants; but more than the price of one piece at a time is never given in advance. There are no intermediate agents between the merchant and the weaver.

Gardens.

Silagutta is celebrated for its *Tarkari*, or kitchen gardens, and this kind of cultivation formerly employed 500 families; which are now reduced to 50, the others having been carried to *Seringapatam* by *Tippoo*, who had no more compunction in removing the inhabitants of one place to another, than in ordering his army to change its ground. To-day I remained at *Silagutta*, in order more fully to examine the cultivation of gardens.

The cultivators of these gardens here are of various casts, *Teliga Banijigaru*, *Ruddi*, *Palli*, *Goalaru*, and *Curubaru*. Where the family contains two men, they cultivate about half an acre; where it contains more, they take in proportion an additional quantity. Their women carry the produce to market in the neighbouring towns; the family subsist entirely on this spot of ground, and pay a heavy rent, which is chiefly procured by the sale of turmeric, wheat, onions, garlic, capsicum, poppy seed, fenugreek, and

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coriander. They exchange their other articles for provisions. They keep a cow, which feeds in the wastes, and gives them milk and manure. According as the water in the wells is far from, or near the surface, their ground rent is from one half more, to three times as much as it would pay if it were cultivated for *dry grains*. Half an acre wrought by two brothers, and having the water at fourteen feet from the surface, pays annually twenty *Fanams*, or 13*s.* 5*d.*; when cultivated for dry grains, this field paid 10 *Fanams* a year, or 6*s.* 8½*d.* The extent of garden ground is estimated by the quantity of *Ragy* that it would sow; and in fact, owing to a want of gardeners, the greater part of what was formerly garden ground is now cultivated with that grain.

In these gardens considerable quantities of wheat and transplanted *Ragy* are raised. The *Ragy* supports the family, and the straw feeds their cow. The crop of it is more productive, than that cultivated on the fields; one third of an acre producing two *Candacas*, which is at the rate of 33$\frac{4}{10}$ bushels an acre.

As a farther specimen of the manner in which the natives manage their gardens, I shall give an account of the cultivation of turmeric, the most valuable article raised by the people of this place.

Turmeric and Maize.

About the beginning of May the field is dug up, with the hoe called *Col Kudali*, to the depth of nine inches, or, if the gardener be industrious, to double that depth. Dung is then spread on the garden, and hoed-in. The plot is then formed into squares, as before described; and in these, at the mutual distance of five or six inches, are planted small cuttings of the turmeric root. Between every slip of turmeric is planted a seed of maize. Once in three days, the squares are watered. At the end of the first month the weeds are removed with a very small hoe, and a little dung is given. In three months, the maize is ripe; but in this climate it does not come to much perfection. Each stem, in common, gives only one head, and very rarely more than two. It can hardly be

called an article of food; as the natives have a prejudice against it, conceiving that it produces gripes. It is chiefly used by the children, who eat it as those in Europe do parched pease. The gardeners generally exchange it with the farmers wives, giving from 20 to 40 heads for a *Seer* of *Ragy*. The straw is given to the gardener's cow, but is not reckoned wholesome food, which is probably a great error. It is pulled out by the roots, and at the same time the turmeric is cleaned, and obtains a little dung. The watering is continued. In ten months it is ripe: it is then dug up, and divided into two kinds, the large, and the small. The large roots are cut into two or three pieces, put into cold water, and boiled for an hour. They are then spread out to the sun for seven or eight days; and finally, in order to break off small lumps or fibres, they are rubbed on the ground with the hand. They are then fit for sale, and by being kept in the middle of a heap of *Ragy* are preserved from worm-eating. Some persons with the turmeric mix the leguminous plant called *Arachis hypogæa*, which requires a longer time to ripen than the maize does.

Yatam.

The small *Yatam* is the only machine for drawing water, that the people of *Silagutta* use. They say that it can raise water from a much greater depth, than a large one. Small *Yatams* can be used, where from the surface to the water there is 7 men's height, or 36 feet 9 inches. This differs entirely from the opinion of the people at *Colar*. The fact is, that both parties blindly follow custom, and never have made any comparative trial.

Chica Bala-pura, and its chief *Nárá-yana Swámi.*

15th *July*.—I went three cosses to the place which in our maps is called *Chinna Balabaram;* the nature of which name no one here understands. By the Mussulmans it is called *Chuta Balapour*, and the native appellation is *Chica Bala-pura*. The country the whole way has been arable; but at present a great part of it is uninhabited, and one of the finest rice grounds that I have ever seen above the *Ghats* is quite waste. About forty years ago *Chica Bala-pura* belonged to *Náráyana Swámi*, a *Polygar*, who possessed also *Doda Bala-pura*,

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Devund-hully, and *Silagutta*, a country producing a yearly revenue of 100,000 *Pagodas*, or 33,579*l.* 0*s.* 4*d.* He resided chiefly at *Chica Bala-pura*, and *Nandi-durga* was his principal strong-hold; from the strength of which he had been able to resist the power of the Mussulmans of *Sira*. This place then contained a thousand houses of merchants or traders; and, although not a fortress of much strength, it was a mart of great importance. *Hyder*, after reducing the neighbouring countries, laid siege to it; and the *Rájá*, unable to resist, agreed to pay 100,000 *Pagodas*; but after some delay the Mussulman was persuaded to go away with only 60,000. These the *Rájá* levied by a contribution from the merchants of this town, which was not given without great reluctance, and is considered as the commencement of their misfortunes. Soon after, the *Rájá* of *Gutti* coming to the assistance of his friend *Náráyana Swámi*, that *Polygar* became refractory, and again drew upon himself the anger of *Hyder*, who took all his forts, and expelled him from the country. The place continued to enjoy considerable prosperity under *Hyder*, although, in consequence of the contribution exacted by the *Rájá*, many of the mercantile houses had withdrawn; for in India, as elsewhere, merchants cannot endure to be taxed. They were soon after entirely dispersed by the tyranny of *Tippoo;* but he added much to the ornament and strength of the fort. On the arrival of Lord Cornwallis the *Rájá* was reinstated; and, after the retreat of the British army, like the other *Polygars* who had been restored to their countries, he refused submission to *Tippoo*. *Ishmael Khán*, the father of one of the *Sultan's* wives, was sent with an army to reduce them. In besieging one of the forts he met with considerable loss; and it was only from its ammunition having been exhausted, that the place surrendered. It is said, that the garrison, consisting of seven hundred men, obtained terms of capitulation which were not observed; the chief officers were hanged, and every soldier had either a hand or a leg cut off with the large knife used by the *Madigaru*, who in this country are the dressers of leather: the only

favour shown to the garrison was the choice of the limb that was to be amputated. A similar punishment was at the same time inflicted on 700 of the neighbouring farmers, who had occasionally stolen into the place, and assisted in its defence. As they had no means of stopping the hemorrhage, except by applying rags dipped in boiled oil; and as many were too poor, and the greater part, on such an occasion, too friendless to procure assistance, a small proportion only of these wretches survived. Some of them are here now, and subsist by begging; and the messenger of *Purnea*, who attends me, was present at the execution, as one of *Tippoo's* soldiers. This barbarous punishment had, however, the desired effect; and every *Polygar* instantly quitted the country. In the last war, the heir of the family returned, and for five months occupied the place. The people here seem to be attached to him; but those of *Silagutta* consider him as a ruffian, like most other *Polygars*. The *Mysore* government offered him terms, which he despised. Rather than accept of any thing less than what his family formerly possessed, he preferred retiring to the countries ceded to the *Nizam*, where there is a kind of licence for all manner of disorder.

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The town is now beginning to revive; and I am told, that both it and the country round are more populous, and better cultivated, than they were under *Tippoo's* government; the vicinity of the *Nizam's* dominions affording excellent means of obtaining a supply of inhabitants. The trade is entirely confined to the purchase and sale of articles produced in the neighbourhood, except that they get some cotton-wool from the *Nizam's* country, and send thither some sugar and *Jagory*. The manufacture of sugar of a fine quality is in great perfection, but on a very confined scale, and is kept a profound secret by a family of *Bráhmans*. Weavers of white cotton cloth are beginning to assemble, and fifteen houses of them are now at work. The place contains 400 houses, of which no less than 100 are occupied by *Bráhmans*. Formerly they had a great extent of charity lands; but, these having been all resumed, they are very

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poor. Most of them are *Vaidika*, and therefore few choose to follow any useful profession. Thirty of the houses are of such high rank, that they live entirely upon charity.

16th *July*.—I remained at *Chica Bala-pura*, where I find that a large proportion of the inhabitants speak, as their native dialect, the *Telinga* language; yet the *Náráyana* family were of *Karnata* extraction. At this place the regulations of *Krishna Ráyalu* were never received, owing perhaps to its having been in possession of the *Náráyana* family before it became subject to the yoke of the *Anagundi* kings, who were of *Telinga* descent.

Sri Vaishnavam Bráhmans.

The *Bráhman* who is here reckoned the most learned of the *Sri Vaishnavam* sect says, that *Ráma Anuja Achárya* made 700 *Sannyásis*, each of which had a *Mata*, or college, and 74 hereditary chiefs. The *Sannyásis* are now reduced to five that are called *thrones (Singhasanas)*; but the whole of the hereditary chiefs remain. About 500 years ago a schism arose in the sect concerning the interpretation of certain of their books. Some of the *Sannyási* and some of the hereditary chiefs followed one interpretation, and some another; and each was followed by the whole of the disciples belonging to his college, or house. Hence the *Sri Vaishnavam* are divided into *Tangalay* and *Wadagalay*, who will neither eat together, nor intermarry. The *Sri Vaishnavams* of the country south from the *Krishna* river will not intermarry with either *Smartal* or *Madual*; but those from *Golconda* are not so scrupulous; and many, who originally came from that country, are now settled in these parts. The differences between the two sects of *Aayngar* consist in some ceremonies: for instance, at prayers, the *Wadagalay* ring a bell, which the *Tangalay* hold in abhorrence. Besides, the *Wadagalay* think, that in order to obtain future bliss, it is very necessary to be regular in their devotions, and liberal in their charity to pious *Bráhmans*. Their opponents attach less importance to those duties. This man denies that his sect ever bestow proper *Upadésa* on their *Súdra* followers, or ever read proper *Mantrams* to them. These

ceremonies are reserved for the three higher casts only; and of these the second is entirely extinct. Those who are pretenders to this rank are by the *Bráhmans* treated merely as *Súdra*. On solemn occasions the *Panchángas*, or village astrologers, read some prayers to the *Súdras;* but they are not taken from the *Vêdas*, and are considered as of very little efficacy. These *Bráhmans* do not consider themselves as at all bound to instruct the *Súdras*, nor to prevent them from offering bloody sacrifices to evil spirits.

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According to my informer, the *Aayngar* always existed; but before the time of *Ráma Anuja*, from the want of charity, they had fallen into a low state; for at that time the worshippers of *Linga*, *Jain*, and *Buddha*, three of the twenty-one heretical sects, were very numerous. The hereditary chiefs do not send fixed deputies to reside among their distant followers; but they occasionally send agents to make circuits, bestow *Chakrántikam*, and receive charity. My informer insists positively, that the *Sannyásis* never bestow their *Upadêsa* on any person, but their intended successor; lest the *Bráhman* so dignified should establish a separate *throne*. Sometimes the intended successor gets the *Upadêsa* early, and is sent to travel till his predecessor dies. The agents employed by the *Sannyásis*, to prevent them from aspiring to the dignity of their masters, are always married men.

Numbi Bráhmans.

The *Numbi* are an inferior order of *Bráhmans*, whose duty is to act as *Pujáris* in the temples. They are all *Vaidika*, and never follow any worldly occupation; but are despised, on account of their receiving fixed wages for performing their duty. The other *Bráhmans* originally, perhaps, all lived by begging, which is the proper occupation of the cast, and the most dignified manner of living, as being most agreeable to God; and in consequence acquired an hereditary superiority over the *Numbis*, which is kept up even by the *Lokika*, who have betaken themselves to worldly business, and who for wages will serve even men. Whatever may be the cause, no *Lokika*,

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much less any *Vaidika*, will eat or intermarry with a *Numbi;* but these receive the same *Upadésa* with the others, and are permitted to read the same books. They all marry, and their offices are hereditary. They are divided into two sects, that do not intermarry. Those of the one act in the temples of *Vishnu*, and follow as *Gurus* the heads of the *Aäyngar* sect. The others are *Pujáris* in the temples of *Iswara*, and follow as *Gurus* the *Smartal Sannyásis*. The *Madual* have no *Numbis;* and their *Gurus* are the only persons of the sect who perform the office of *Pujári* in any temple.

Doctrines of the *Aäyngar*, or *Sri Vaishnavam*.

The *Aäyngar* say, that *Para Brahma*, *Náráyana*, or *Vishnu*, is the supreme god. He is represented by images having one head, and under that form is worshipped in all temples. He assumed four great forms, or *Avatárs*, *Anirudha*, *Pratimána*, *Vásudéva*, and *Sankarshana:* the forms of these *Avatárs* may be seen in temples, but they are only worshipped by the angels. The supreme deity then assumed eleven incarnations, or inferior *Avatárs*. Ten of these are the common objects of worship with men; the eleventh, or *Budha*, is held in abhorrence. *Brahmá*, the son of the supreme deity, was born with five heads; but lost one of them in an intrigue which he had with the wife of his son *Iswara*. He is represented in temples with four heads; but his images are placed there merely as ornaments, and never occupy the sacred place where the object of worship stands. *Iswara*, the son of *Brahmá*, has five heads, and is held in abhorrence by the *Aäyngar*, as being the husband of *Parvati*, who has taken the form of many destructive spirits, such as *Marima*, *Putalima*, and the like. Fear of immediate destruction sometimes tempts the *Aäyngar* to pray to the destroying powers; but in general they pretend, that they are entirely occupied by thoughts of happiness in the next world, which can only be procured by the favour of the *Avatárs* of *Vishnu*, or of their wives, all of whom are incarnations of *Máyá*. The servants of the *Avatárs*, such as *Hanumanta*, are not proper objects of worship; but some *Numbis*, in

order to procure bread, officiate as priests in their temples; for the populace believe, that these beings have the power of bestowing temporal blessings. CHAPTER V. July 16.

Doctrine of the *Smartal.*

The most learned *Smartal* here say, that *Para Brahma* is the supreme god, and *Máyá*, or *Sakti Prakriti*, is his wife. They deny the four forms of God worshipped in heaven; but say, that from *Máyá* proceeded three great *Avatárs*, of a good, of a kingly, and of a destructive nature; and named *Vishnu*, *Brahmá*, and *Iswara*, or *Siva*. *Vishnu* has assumed a great number of inferior *Avatárs*, or incarnations, of which however ten are more distinguished than the others. The three *Avatárs*, called *Vishnu*, *Brahmá*, and *Iswara*, are however to be considered as all the same with *Para Brahma*; and *Parvati*, the wife of *Siva*, is the same with *Máyá*. All the *Saktis* are a kind of *Avatárs* of *Parvati*; but *Bráhmans* ought not to worship her under these forms. To obtain wisdom, the *Smartal* worship *Siva*, and his wife *Parvati*; *Ganéswara*, their son, to prevent him from obstructing their views; and *Vishnu*, to obtain heaven. They do not allow that there is any image of *Para Brahma* or *Náráyana*; and say, that the image, so called by the *Aäyngar*, is one of the forms of *Vishnu*. This sect evidently believe in a kind of Trinity, there being three forms, which are essentially the same, and yet different; but their doctrine is very distinct from that taught by Christians; as they have in their supreme god-head a male and a female power, from whence proceed three persons of the male sex, accompanied also by three female persons, and the female is always called the *Sakti*, or power of the deity.

Sankara Achárya.

The *Smartal* say, that it was God who assumed the form of *Sankara Achárya*, and that he lived long before the time of *Ráma Anuja*. At that time all *Bráhmans* were *Smartal*; but the kings and people were mostly followers of *Buddha*, or of the other heretical sects.

All these *Bráhmans*, when asked for dates, or authority, say, that they must consult their books, which may be readily done; but

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when I send my interpreter, who is also a *Brahman*, to copy the dates, the *Brahmans* here pretend that their books are lost.

The *Pacanat Jogies* belong to a tribe of *Telinga* origin, that is scattered all over the peninsula; and in their own language they are called *Jangalu*. The proper business of their cast is the collecting, preparing, selling, and exhibiting of the plants used in medicine. As a guide in the practice of physic, they read the *Vaidya Sastram*, which is written in the *Telinga* language; and they also study the *Abara*, which is the most approved dictionary, or school-book, in that dialect. They are very poor, and go about the street, each crying out the names of certain diseases, for which he pretends to have a powerful specific. Their virtuous men, after death, are supposed to become a kind of gods, and frequently to inspire the living; which makes them speak incoherently, and enables them to foretel the event of diseases. Medicine, in this country, has indeed fallen into the hands of charlatans equally impudent and ignorant. Such of the *Jangalu* as are too lazy and unskilled to practise physic, live entirely by begging. In whatever country they have settled, they can all, without distinction, intermarry; which by their neighbours is looked upon as a great indecency, and as subversive of the purity of cast. They keep as many wives as they can; and never divorce them, adultery being either unknown, or not noticed. They do not marry their girls till after the age of puberty. A widow cannot take a second husband; but she is not expected to bury herself with the body of her husband. They can lawfully eat sheep, goats, hogs, fowls, and fish; and intoxicate themselves with spirituous liquors, opium, and hemp. They have moveable huts, which they pitch on the outside of towns, and wander about the country, selling and collecting their drugs. Asses are their beasts of burthen. They have no hereditary chiefs, but follow the advice of old men, who have, however, no power of excommunication. They consider *Iswara* and *Vishnu* as the same god, and, when in distress, pray mentally to these deities. They offer sacrifices to *Gangoma*, *Yellama*,

Gorippa, &c.; and in distress make vows of money to *Dharma Raja*. Their *Guru* is the *Sri Shela Bichawutta*, who sits on the *Surya Singhásana*, or throne of the sun. He is a married man of hereditary rank, and wears the *Linga*, of which the *Jangalu* are not considered worthy. When one of them goes to the *Guru*, he makes a profound reverence, and, according to his slender means, presents a small sum. The *Guru*, in return, gives them some consecrated ashes of cow-dung, with which they make the mark of *Siva* on their foreheads; and he takes their beads in his hand, by which the prayers repeated on them become more efficacious. At their marriages the *Panchanga* reads prayers (*Mantrams*). At the *Amavasya*, or new moon, they fast; but they observe no ceremony in honour of their parents.

Customs of the *Asagaru*, or washermen.

The *Asagaru*, *Asagas*, or washermen, in this country are of two kinds, *Súdra*, and *Whalliaru*. The former are of two nations, *Telinga* and *Karnata*. These last are by far the most numerous; and, although they will not intermarry with the *Telinga* washermen, yet they will eat in common. They have no hereditary chiefs; but the collector of the district, who is appointed by the government, and receives a salary, carries all complaints to the *Cutwal* of the *Kasba*, or police officer of the chief town of the district, who settles them according to custom. The washerman of every village, whose office is hereditary, washes all the farmers clothes, and, according to the number of persons in each family, receives a regulated proportion of the crop. Out of this he must pay to government a certain sum, which in general is collected by the head washerman of the *Kasba*. They follow no profession but that of washing; and in all public processions, are bound, without reward, to carry a torch before the images, and the chief officer of government. Both men and women wash. Their proper beasts of burthen are asses, each house keeping for breeding and labour two or three she asses. The female colts are reserved to keep up the breed; and the males are sold to the

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different petty traders that use this kind of cattle. The washermen confine their marriages to a few families that they know to be of pure descent. They marry a number or wives if they can afford it; but that is seldom the case. The girls, even after the age of puberty, continue to be marriageable; but cannot take a second husband. They can be divorced for no other cause than adultery. None of them can read: in fact, although admitted to be *Súdras*, they are a cast most deplorably ignorant. They never take the vow of *Daséri*. They are allowed to drink spirituous liquors, and to eat fish, fowls, and hogs; but will not touch carrion. They worship a god called *Bhúma Dévaru*, who is represented by a shapeless stone. At *Bangalore*, and some other large towns, they have temples dedicated to this god, and served by a *Pújari* of their own cast. To *Bhúma Dévaru* they offer fruit, and solicit him not to burn or destroy their cloth. They sacrifice animals to *Ubbay;* which, so far as I can understand, means steam. They conceive that it is God who makes their water boil, and occasionally burns their cloth; and also that the steam, issuing from the water, is the more immediate residence of the divinity, whom therefore they call *Ubbay;* but they believe *Ubbay* and *Bhúma* to be the same. This seems to be the proper worship of the cast; but they address themselves to any other object of superstition that comes in their way, praying to *Vishnu* and the other great gods, and sacrificing to *Putalima* and the *Saktis*. These prayers and sacrifices seem intended merely to procure temporal prosperity. I could not perceive that they had the smallest knowledge or belief of a state of future existence. Their *Gurus* are of the *Satánana* cast; but where they live, or what they do, is to their followers totally unknown. They come round occasionally, bestowing holy water, and getting food and money as charity. The *Panchánga* attends at marriages, and tells them the times of the new moon; at which period almost all *Hindus* observe a fast in memory of their deceased parents. They say, that, as they

wash the clothes of the astrologer, or *Pancha'nga*, he occasionally comes, and tells them some lies; for that he is never at the trouble of predicting the truth, except to those who are rich. CHAPTER V. July 16.

Customs of the *Wully Tigulas.*

The *Wully Tigulas*, like the *Vana Pallis*, are a cast of *Tamul*, or *Tigula* origin; and their only employment is the cultivation of kitchen gardens. They have lost their original language; but when there is a scarcity of girls here, they go down to the lower *Carnatic*, and get wives from the parent stock. The men are allowed a plurality of wives, and never divorce them, but content themselves with giving their females a good drubbing when they prove unfaithful. The girls continue to be marriageable after the age of puberty, and are very industrious in gathering the produce of the garden, and in carrying it to market. They do not spin. This cast has hereditary chiefs called *Gaunda*, which is the *Tamul* name for the head man of a village. None of them can read. With the *Vana Pallis* they eat, but cannot intermarry. They are allowed to eat animal food, but not to drink spirituous liquors. They bury the dead, and have some faint notions of a future state; but rather as a thing of which they have heard, than as a thing of which they are firmly convinced, or in which they are much interested. They take the vow of *Dáseri*, which literally means service; the person, who takes the vow, thereby dedicating himself to the service of God. They are admitted into all temples, so that they are not considered of an impure descent; but they have no *Guru*. At the annual commemoration of their deceased parents, the *Panchánga* reads prayers (*Mantrams*), which they do not understand; but at births, marriages, or funerals, no such ceremony is required. They do not observe the *Amávasyas*. The cast god is *Vencata Rámana*, or the *Vishnu* of *Tripathi*. When they go into a temple of this idol, they give the priest some small money, and get in return holy water and consecrated flowers. They offer sacrifices to the *Saktis*, and in fact worship every thing they meet, which is called a deity.

Gardens.

Although this place be only three cosses from *Silagutta*, the

CHAPTER V. July 16. difference in the cultivation of gardens is astonishing; and, although water is to be had at the depth of three men's stature, garden ground gives less rent than common dry-field. Very few subsist by gardening alone; and they raise neither turmeric, wheat, nor poppy. With a proper colony of *Silagutta* people, as there is plenty of water, much land might be here converted into gardens. It is now waste, having too hard a bottom for the cultivation of *Ragy* or sugar.

Sugar. The sugar-candy made here is equal to the Chinese, and the clayed sugar is very white and fine. The art was introduced by the *Sultan* at *Seringapatam,* but was kept secret. Two *Bráhmans,* however, of this place obtained a knowledge of the art; but they also are determined to keep it a secret. The price at which they sell it totally precludes it from an extensive sale; as the Chinese sugar-candy is now sold at *Seringapatam,* cheaper than the fine sugar-candy of this place is sold on the spot. In *Tippoo's* reign the prohibition of commerce with the lower *Carnatic* made the manufacture of importance. The actual price of the fine sugar-candy made here is 10 Company's *Rupees* a *Maund* of 24 lb. or 5*l.* 1*s.* 1*d.* a hundred-weight; and of the fine soft sugar, 20 *Sultany Fanams* a *Maund,* or 3*l.* 2*s.* 7¼*d.* a hundred-weight. The common brown sugar-candy, the original manufacture of the country, sells for 5 *Rupees* the *Maund,* or 2*l.* 10*s.* 6½*d.* the hundred-weight; and the common brown soft sugar at 3 *Rupees,* or 1*l.* 10*s.* 4*d.*; the value of the *Rupee* being taken at the exchange of *Seringapatam.* From the farmers the sugar-makers purchase the juice of the cane, after it has been boiled down to a certain degree; and pay 2 *Rupees* for the produce of 1000 canes, which will make 2 *Maunds,* or 80 *Seers,* of *Jagory.* This gives,

Of refined white sugar-candy	16 *Seers*	£.0	8	8
Of refined white soft sugar	35 *Seers*	0	12	5
Of brown sugar-candy	22 *Seers*	0	5	11½
Of brown soft sugar	40 *Seers*	0	6	6
The cost of the materials is nearly		0	4	4

First form.

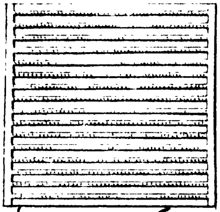


Fig. 31.

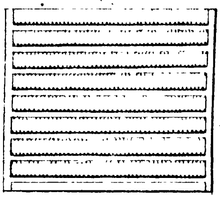


Fig. 32.

Second form.

Plan of a sugar cane field at Colar.

Fig. 33.

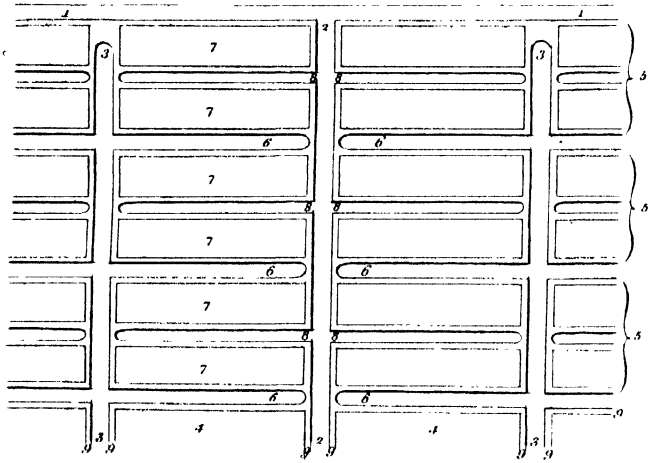
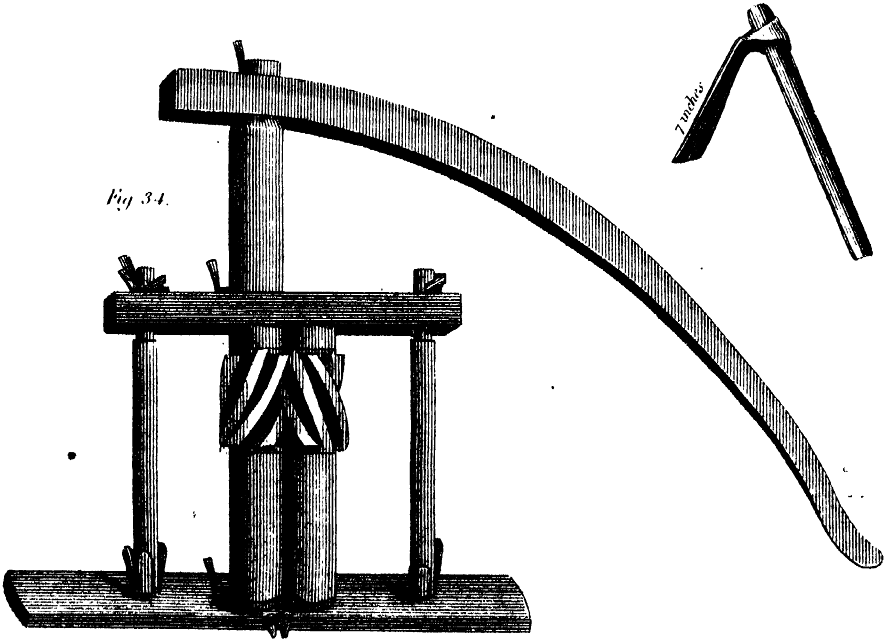


Fig. 35.

Fig. 34.



Sugar Mill at Chica Ballapura.

Warner sc.

Either the expenses or the profits of this manufacture, therefore, are immense. The fine white soft sugar is made up into a kind of paste, which is put into moulds of a variety of forms, and thus hardens into solid masses, that are presented to guests at marriages, or on other great occasions; which seems to be the reason of the enormous price of this manufacture. The art of making this paste is also a secret.

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Having taken some of the cultivators to the cane-fields, they showed me a plot which they said would produce a hundred *Maunds* of *Jagory;* and they observed, that every hole, in which two cuttings are planted, should produce from 6 to 10 ripe canes. By measuring this field, and allowing for the distance occupied by each hole, I found that it would plant 8000 double cuttings; but, as some holes fail entirely, I shall only take the average number of canes from each hole at between six and seven; and then the produce of the field will agree perfectly with the two *Maunds* of *Jagory*, stated by the sugar boilers to be what could be obtained from 1000 canes. I look upon this, therefore, as good *data* for a calculation; and, extending the measurement, I find that the acre should produce about 140 *Maunds* of *Jagory*, or 30 hundred-weight of this rude material; which is capable of being made into 15 hundred-weight of raw sugar, worth 22*l.* 15*s.* Of this, however, one third must be deducted for the expense of manufacture, leaving 15*l.* 3*s.* 4*d.* an acre to be divided between the government and cultivator. Of this the government nominally gets one half; but the deductions made on a division are very great. Some sugar-land here is watered by the machine called *Yatam*, an expense which it can well bear. In this case, the farmer, for his additional trouble, gets one quarter of the government's share.

Sugar-mill.

The sugar mills which the people here, as well as every where in the *Sira Subadary*, use, are two cylinders wrought by a perpetual screw, and two bullocks (Figure 34); but seven times in the 24

CHAPTER V. July 16. hours the bullocks are changed. The mill goes night and day; and, by the labour of 14 bullocks, expresses 7000 canes, which produce 14 *Maunds* of *Jagory*, or 7 *Maunds* of raw sugar, equal to $1\frac{1}{2}$ hundred-weight. To any one of our *West India* planters, the wretched state of mechanics among the *Hindus* will, from this, be very evident; yet, miserable as this machine seems to be, it appears to me better adapted for the purpose to which it is applied, than the mill in use at *Chenapatam*. So far as a very slight knowledge of *Jamaica* will enable me to judge, the sugar planters of the *West Indies* have a decided advantage over those of *Hindustan* in climate, soil, carriage, and skill both in agriculture and mechanics; but the enormous price of labour must always be a heavy drawback on them, while they continue the present system of keeping up the population by slaves imported from *Africa*.

July 17. Appearance of the country.

17th *July*.—In the morning I went three cosses to *Bhidi-caray*, a small fortified village situated on the side of *Nandi-durga*, which is opposite from *Chica Bala-pura*. I passed through among the hills by the side of *Chin'-raya-conda;* from whence, it is said, springs the *Pennar*, or, the *Utara Pinákaní*, as it is called in the *Sanskrit*. This river runs toward the north; and the *Palar*, which springs from *Nandi*, runs to the south. These hills may therefore be looked upon as the highest part of the country in the center of the land, south from the *Krishna*. The sources of the *Kávéri* and *Tungabhadra*, towards the western side, are probably higher.

Among the hills of *Nandi-durga* is much fertile land, now covered with *Bamboos*, and useless trees; but which, with a little encouragement, might be brought into cultivation: this, however, would be improper, until there be a number of people, and a quantity of stock, sufficient to occupy all the lands that have formerly been cultivated, but are now waste. Such, at least, is the opinion of the *Amildar*, who is a sensible man.

Hindu manners.

I took an opportunity, in company with this *Amildar*, of examin-

ing into the management of the *Lac* insect; and for this purpose we collected all the people who follow that employment. I have always found, that the more of any class of people were assembled, the more likely I was to get just information: not that all of them spoke; some one or two men generally answered my questions; but they did it without fear of reflexions from those who might otherwise have been absent; as every one, if he chose, had an opportunity of speaking. The *Hindus* of all descriptions, so far as I have observed, are indeed very desirous of having every kind of business discussed in public assemblies.

July 17.

Lac insect.

The people who manage the *Lac* insect, in the hills near *Nandidurga*, are of the cast called *Woddaru;* and for the exclusive use of the trees they pay a rent to government. The tree on which the insect feeds is the *Jala*, which is nearly related to the *Saul* of Bengal, or the *Shorea* of Gærtner, and perhaps the *Vatica Chinesis* of Linnæus. All the trees that I saw here were small, not exceeding eight or ten feet in height; and their growth was kept down by the insect and its managers; for this size answers best. The tree, left to itself, grows to a large size, and is good timber. For feeding the insect, it thrives very well in a dry barren soil; and is not planted, but allowed to spring up spontaneously as nature directs. It is often choked by other trees, and destroyed by *Bamboos*, which, by rubbing one against another, in this arid region, frequently take fire, and lay waste the neighbouring woods. By removing all other trees from the places where the *Jala* naturally grows, and perhaps by planting a few trees on some other hills, and protecting them from being choked as they gradually propagate themselves, the *Lac* insect might be raised to any extent on lands now totally useless, and never capable of being rendered arable. In *Kartika*, or from about the middle of October to the middle of November, the *Lac* is ripe. At that time it surrounds almost every small branch of the tree, and destroys almost every leaf. The branches intended for sale are then cut off, spread out

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on mats, and dried in the shade. A tree or two, that are fullest of the insect, are preserved to propagate the breed; and of those a small branch is tied to every tree in the month *Chaitra*, or from about the middle of March to the middle of April; at which time the trees again shoot out young branches and leaves. The *Lac* dried on the sticks is sold to the merchants of *Balahari, Gutti, Bangalore*, &c.; and according to the quantity raised, and to the demand, varies in price, from 5 to 20 *Fanams* a *Maund*. This is what is called *stick-lac*. In my account of *Bangalore*, I have given the process for dyeing with this substance; which, after the dye has been extracted, is formed into *seed* and *shell lac*.

Appearance of the country.

I found the country beyond the hills more desolate than that near *Chica Bala-pura*. One third of what has formerly been cultivated is not occupied; many of the villages are entirely deserted, and have continued so ever since the invasion of Lord Cornwallis. The people say, that they were then afflicted with five great evils: a scarcity of rain, followed by that of corn; and three invading, and one defending army, all of which plundered the country, and prevented grain from being carried from places where it might have been procured; but, in destruction, the armies of the *Marattahs*, and of the *Sultan*, were eminently active; and the greater part of the people perished from want of food. In this last war they met with no disturbance from the armies; but three fourths of their cattle perished by disease. This was not owing to a want of forage, of which there was plenty; but is by the natives attributed to an infection, which was propagated from the cattle of the armies besieging *Seringapatam*. Between *Colar* and *Chica Bala-pura* the *disease* has this year again made its appearance; but it has not yet come to this side of the hills.

The whole land near *Bhidi-caray* has formerly been cultivated; and the champaign country seems to extend far to the westward, where, at the distance of thirty-two miles, *Sivá-ganga* rears its conical head. The *Ragy* is now coming up, and makes a wretched

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appearance; for in every field there is more grass than corn. Notwithstanding the many ploughings, the fields are full of grass-roots, which are indeed of great length, very tenacious of life, sprout at every joint, and are of course difficult to remove; but a good harrow would effect much. The farmers of this country are abundantly industrious; but their want of skill is conspicuous in every operation.

CHAPTER VI.

FROM DODA BALA-PURA TO SIRA.

CHAPTER VI.

July 18.

THE 18th *July* I went two cosses to *Burra*, *Pedda*, *Doda*, or Great *Bala-pura*, as it is called in the Mussulman, *Telinga*, *Karnata*, and English languages. All the country through which I passed has formerly been under cultivation; but now it is almost entirely unoccupied.

Doda Bala-pura.

On the dissolution of the *Vijaya-nagara* kingdom, *Náráyana Swámi*, the *Polygar* of *Bala-pura*, assumed independency; and in the fort, remains of his castle, surrounded as usual by temples, may still be traced. On the invasion by the *Mogul* army under *Cossim Khán*, the *Polygar* was obliged to give up this open part of his country, and to retire to *Chica Bala-pura*, situated nearer his strong-holds. *Doda Bala-pura* formed then one of the seven districts of the *Sira* government; but it was soon wrested from the Mussulmans by the *Marattahs*. On their decline again, after the battle of *Panniput*, it was seized by the *Nizam*, who gave it as a *Jaghir*, or feu, to *Abbass Khuli Khán*, a native of the place. He enlarged the fort to its present size, made very good gardens after the Mussulman fashion, and built a palace with all conveniencies suitable to his rank. On the growth of *Hyder's* power, however, he was under the necessity of giving up the place without resistance; but not choosing to enter into that adventurer's service, whom he considered as his inferior in rank, he returned with his children into the lower *Carnatic*, and entered into the service of the *Nabob* of *Arcot*. One of his wives and her grandson refused to follow him; and these live now in the fort upon a small pension that was granted them by *Hyder*, and which has been continued by the Company.

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July 18.

The fort, considering that it is built entirely of mud, is very large, and very strong. All within, as usual, is a sad heap of rubbish and confusion. The *Assur Khana* of *Abbass Khuli Khán* is however a handsome building. In this kind of temple the Mussulmans of the *Decan*, infected by the superstition of their neighbours, worship *Allah* under the form of a human hand, painted on a board between two figures that represent the sun and moon.

One side of the fort is surrounded by gardens; and the other three sides by the town of *Bala-pura*, which contains 2000 houses, and is fortified with a mud wall and hedge. In this town was born *Meer Saduc*, the detestable minister of the late *Sultan*. He adorned his native place by a garden, which, together with that of *Abbass Khuli Khan*, is kept up by the *Rája*.

19th and 20th *July*.—I remained at *Doda Bala-pura*, making some inquiries. July 19, 20.

Customs of the *Gollaru*.

The *Gollaru*, or, as they are called in their own language, the *Gollawanlu*, are a tribe of *Telingana* descent, and must be distinguished from the *Cadu*, or *Carridy Goalaru*, who keep cattle; with whom they neither eat in common, nor intermarry. They are one of the tribes of *Súdra*, whose duty it is to cultivate the ground, and to act as the village militia. This cast has, besides, a particular duty, the transporting of money, both belonging to the public and to individuals. It is said, that they may be safely intrusted with any sum; for, each man carrying a certain value, they travel in bodies numerous in proportion to the sum put under their charge; and they consider themselves bound in honour to die in defence of their trust; of course, they defend themselves vigorously, and are all armed; so that robbers never venture to attack them. They have hereditary chiefs called *Gotugaru*, who with the usual council settle all disputes, and punish all transgressions against the rules of cast. The most flagrant is the embezzlement of money intrusted to their care. On this crime being proved against any of the cast, the *Gotugaru* applies to the *Amildar*, or civil magistrate, and, having

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obtained his leave, immediately causes the delinquent to be shot. Smaller offences are atoned for by the guilty person giving an entertainment. In cases of adultery, the chief collects four elders, who admonish the woman to a more decent conduct. If she be repentant, the husband takes her back; but if she be impudent, he divorces her. After the age of puberty the girls continue to be marriageable, and a man may marry as many of them as he can maintain, or procure; for the former is not difficult, the women being very industrious, both in the field and in spinning. They are divided into several families, *Mutsarlu, Beinday, Molu, Sadalawanlu, Perindalu,* and *Toralay.* These are like the *Gótrams* of the *Bráhmans;* the intermarriage of two persons of the same family being considered as incestuous. They call the proper god of the cast *Krishna Swámi,* who is one of the incarnations of *Vishnu;* and they allege, that he was born of their cast both by father's and mother's side. The *Bráhmans* allege, that the mother of this great warrior was of the *Goala,* or cow-keeper cast; in which, perhaps, they are well founded; and they pretend, that a *Bráhman* condescended to impregnate her, which is not improbable. The *Gollawanlu* offer sacrifices to the *Saktis.* They pray to *Kála Bhairava* (terrific time); but the women do not appease his wrath by sacrificing their fingers, like the female *Morasu* above described. They think, that after death good men become a kind of gods; and they offer sacrifices to these spirits: bad men become devils. They know nothing of transmigration. They bury the dead, and sometimes take the vow of *Dáseri.* They are allowed to eat animal food, and to drink spirituous liquors. Although their *Guru* wears the *Linga,* they do not. He is a *Jangama,* named *Malaiswara Swámi,* who lives at *Mapákáli Conda,* about 14 miles north from hence. On his followers he bestows holy water; and for every marriage accepts of a *Fanam,* although he does not attend the ceremony. This tribe seems not to be much attached to any sect; as its members also take holy water from the *Gurus* of the *A'ayngar Bráhmans,*

and bestow on those persons charity in money and grain. At their marriages, at the new moons, at births, and at the *Todanu*, as the annual commemoration of the death of their parents is called in the *Telinga* language, the *Panchánga*, or village astrologer, reads prayers *(Mantrams)*, which are by them reckoned of great efficacy, as they are in a language which they do not understand.

Customs of the *Cúnsa*.

The *Cunsa Woculigaru* are a tribe of *Súdra* of *Karnata* descent, who are properly cultivators, and who formed a part of the *Candashara*, or native militia. Their hereditary chiefs are called *Gaudas*, whether they are head-men of villages or not. The *Gauda* by excommunication, or by the mulct of an entertainment, settles disputes, and punishes transgressions against the rules of cast. In cases of adultery, the head-man, assisted by his council, inquires into the matter. If the man has been of the same cast, the adulteress is only reprimanded, the husband of course retaining the power of giving her corporal punishment, although he rarely proceeds to such extremities; but if the man has been of a strange cast, the adulteress is excommunicated. They can all intermarry, and the men are allowed to take several wives. The women are very industrious spinners, and labourers in the field, and continue to be marriageable after the age of puberty. Widows ought to be buried alive with their husband's bodies; and some of the more strict people regret that the custom has become entirely obsolete. They are allowed to eat animal food, but not to drink spirituous liquors. Some of them can read, and write accompts. They all worship the *Saktis*, by sacrificing animals, which they afterwards eat. They believe, that after death the spirits of good men become a kind of gods, and, by sending dreams, warn men of what is to happen. Bad men, after death, become devils, but have no power over the living. To the sainted spirits they offer sacrifices. Some of them take the vow of *Dáseri*, and some pray to *Dharma Rája*. The *Panchánga*, or village astrologer, reads *Mantrams* to them at marriages and births, and in some places attends at the annual

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commemoration of their parents' death; but in other places those who have taken the vow of *Dáseri* attend at this ceremony. They are divided into two religions. One sect worships *Siva:* these do not wear the *Linga;* but their *Guru* is a *Lingabanta Einaru,* called *Nanjaya,* who lives near *Colar:* he comes occasionally, distributing holy water, and accepting charity. The other sect worships *Vishnu,* and follows the hereditary chiefs of the *A'ayngar,* who on their occasional visits distribute holy water, and accept of charity.

Customs of the *Lali-Gundaru.*

The *Lali-Gundaru* deny their being *Súdras,* and say that they are *Linga Banijigas;* but that race will neither eat in their houses, nor give them their girls in marriage. They are a tribe of *Karnataka* descent. They are farmers, bullock-hirers, gardeners, builders of mud walls, and traders in straw and other small merchandize: but they never take service as *Batigaru,* or hinds. They have hereditary chiefs called *Ijyamánas;* who, as usual, with the assistance of a council, settle disputes, and punish transgressions against the rules of cast, by mulcting the offender in an entertainment, or by a temporary excommunication. In cases of adultery, the chief and his council first investigate the business. If they find it proved, that a woman has been guilty of a connexion with a man of a strange cast, the priest *(Wodear)* is called, and in his presence she is excommunicated; but, if she has only betowed her favours on a man of the cast, her husband turns her away, and she may live with any unmarried person of the cast as a concubine. The men are allowed to have a number of wives; and even after the age of puberty the women continue to be marriageable. The sex are very industrious, both at spinning, and working in the fields. This cast bury the dead; and, although they offer sacrifices to the *Saktis,* are not allowed either to drink spirituous liquors, or to eat animal food. They pray to the spirits of good men, thinking that they are the occasion of dreams which foretel future events; but they know not what becomes of the spirits of bad men after death. Some of them are worshippers of *Vishnu,* and some of *Iswara.* The *Guru* of the former

is a *Sri Vaishnavam Bráhman* residing at *Ahobalum.* The *Guru* of the *Siva* side lives at *Meilar*, and is called *Linguppa.* He wears the *Linga*, as do also his followers; and he is a *Sannyási*, but of what kind the people here do not know. In his excursions, which do not happen above once in ten years, he distributes holy water, and receives contributions under the name of charity. It is at their marriages only that the *Panchánga* reads *Mantrams.*

Customs of the *Bheri* who wear the *Linga.*

I have already mentioned the customs of the *Nagaratras*, or *Bheri*, who worship *Vishnu*, and of those who worship *Siva* without wearing the *Linga.* I had here an opportunity of examining those who wear that indecent badge of their religion. They will neither eat nor intermarry with either of the other two sects; but the whole submit to the authority of the same hereditary chiefs, whatever their religious opinions may be. They say, that all *Bheri* were formerly of the *Vishnu* side, and that about five hundred years ago they separated from it. Yet they contend, that even before this secession, they and all other *Nagarataru* were under the authority of *Dharma Siva Achárya*, a *Smartal Sannyási* residing in the lower *Carnatic.* For this extraordinary circumstance they can assign no reason. This *Bráhman* at their marriages bestows on them a thread, like that which is worn by the three higher casts; for they pretend to be *Vaisyas.* For each thread, which ever after marriage they continue to wear, they pay one *Fanam.* Under the name of *Dharma* (duty), they also give contributions to this *Bráhman* whenever he comes to the place. On such occasions he punishes by whip and fine all those who have transgressed against the rules of cast. They are also subject to *Muniswara Swámi*, a person of their cast, who lives at *Baswana-pura*, near *Cangundy*, in the *Bára Mahál.* He bestows on them the *Linga*, and an *Upadésa;* but his power in punishing for delinquencies extends only to fines. The first *Muniswara Swámi* is believed to have sprung from the earth at *Kalyána Pattana;* and his successors acknowledge no superiors, but are considered as *Iswara* in a human form. The office is hereditary, and of

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course the *Swámi* marries. The eldest son, on the death of his father, becomes an incarnation of *Siva;* while the younger brothers are considered merely as holy men, but follow begging as their profession; for in this country that is esteemed the most honourable employment. They reside in the *Matam*, or college, with their brother, and accompany him in his travels among the disciples. The daughters of this sacred family never marry persons of lower birth; but when there is a scarcity of women for the use of the men, they condescend to take the daughters of the *Emulnaru*, who among this sect are a kind of nobility. These do not intermarry with the populace; but they follow lay professions, and are not in exclusive possession of the office of hereditary chief. In the two other sects of this cast, there are no *Emulnaru*. The *Bráhman Guru*, and *Muníswara Swámi*, are considered as of equal rank. The *Lingabanta Jangamas* are not by this cast considered as their *Gurus;* but they receive charity, by which a kind of authority is implied. They give nothing to the *Dévánga Jangamas*. They do not know that *Muníswara Swámi* is possessed of any books: when he bestows the *Linga*, he prays extemporarily in the vulgar tongue. At marriages, and the ceremonies which are performed for their deceased parents, the *Panchánga* and mendicant *Bráhmans* attend, and read *Mantrams*. On these occasions the *Jangamas* also attend, and besides receive the whole profit of births and funerals. They bury the dead, and their widows ought to accompany them in the grave; but this custom has become obsolete. Widows cannot marry again: such an action, indeed, being considered as intolerably infamous, my informers lost all patience when I asked the question. The men are allowed a plurality of wives, but cannot divorce them for any cause except adultery. They are not allowed to eat animal food, nor to drink spirituous liquors.

Farther account of the customs of the *Whallias*.

I here find, that besides the tradesmen, there are three divisions among the *Whalliaru;* and that the customs of each differ considerably in different villages, as might be naturally expected among

a people who have no written rule. There are two tribes of *Whallias* that speak the language of *Karnata;* one called simply *Karnata,* and the other *Morasu Whalliaru.* These last deny that they have any *Guru;* but say, that they give presents to the priest at the temple of *Kála Bhairava.* They offer sacrifices to the *Saktis,* to whom they are never *Pujáris;* and in this place they never take the vow of *Dáseri.* The *Karnata Whalliaru* say, that they have a god named *Cadri Singuppa,* which is one of the names of *Vishnu.* The *Pujári* at this idol's temple is a *Vaishnavam,* and acts as their *Guru.* He sends annually a deputy to bestow holy water, and receive charity. They also sacrifice to the *Saktis.* The *Teliga Whalliaru* call themselves *Maliwanlu,* and retain the *Telinga* language. Their religion here is the same with that last mentioned. They have no idea of a future state. They never marry two wives; but, to keep up the family, if the wife has no children, they may take one concubine. Some men do not marry, and these may keep as many concubines as they please. The *Gotugaru,* or chief of the cast, here, is not an hereditary office, but a person appointed by the *Amildar* to collect the house-rent. He is a *Parriar* from the lower *Carnatic;* for, as I have before observed, the *Parriar* of the *Tamuls,* is the same cast with the *Whalliaru* of *Karnata,* and the *Maliwanlu* of *Telingana.* He settles all disputes; and on all delinquents imposes a mulct of an entertainment.

Customs of the *Siva* sect of *Teliga Dévángas.*

The *Teliga Dévángas* of the *Siva* sect intermarry with those who worship *Vishnu;* and the wife always adopts the religion of her husband. Even after the age of puberty the women may marry; and, except for adultery, cannot be divorced. Polygamy is allowed to the men, but they do not confine their women. Widows were formerly expected to bury themselves alive with their husbands bodies, but the custom has become obsolete. The people of this cast are allowed to eat animal food; but not to drink spirituous liquors. They offer sacrifices to the *Saktis,* and have the same opinion concerning a future life, that the *Canara Dévángas* entertain. They can read

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Seringapatam. He says, that the manner of refining the raw sugar is by boiling it with milk; which, by its coagulation, would no doubt answer the purpose, but the process must be expensive.

Puckally, or *Capily*, a machine for raising water.

In some places of this vicinity, the ground for sugar-cane is watered by the machine which the Mussulmans call *Puckally*, and the natives *Capily*. It consists of two bags of skin raised by a cord passing over a pulley, and drawn by two oxen, or buffaloes, descending on an inclined plane. The great imperfection of this contrivance seems to be, that the cattle are forced to reascend the inclined plane backwards; but it appears to be a manner of raising water very capable of being improved, so as to become highly valuable. One man manages both the cattle; but these work only one half of the day; so that the *Puckally* requires the labour of one man and four beasts. The cultivators here reckon, that one *Puckally* will raise as much water as nine men working with the largest *Yatam*, on which two men work the lever; or as seven men each working a single *Yatam*. This seems to confirm my opinion of the superiority of this last mentioned machine. The cost of the cattle is not reckoned to be more than that of one man, as they get no other provision than the straw of the farm, which they convert into manure, and which would otherwise be lost. Those who raise sugar-cane have two fields, on which they alternately raise that plant and *Ragy*. If they use the *Capily* for watering their cane, they pay a money-rent, which is reduced in proportion to their trouble; but if they obtain a supply of water from a reservoir, the government takes one half of the crop.

Breed of asses.

Above the *Ghats* asses are a kind of cattle much used. Every washerman keeps three or four females, and a male. The superfluous males, as I have had occasion to mention, are sold to various kinds of petty traders. The breed is very small, no pains being taken to improve it; nor indeed to keep it from growing worse, unless it may be considered as having already arrived at the ultimate degree of imperfection. For the purpose of breeding mules,

the late *Sultan* introduced some fine asses from Arabia; but the prejudices of his subjects were so strong, that nothing could be done. The animal is indeed considered so impure, as to be beneath the notice of every person who has any kind of claim to rank; and my questions on the subject were rather disagreeable. Black asses are not uncommon, and white ones are sometimes to be seen; but neither constitute a different breed. The asses get nothing to eat, except what, in the intervals of labour, they can pick up about the village. When the crop is on the ground, they are tied up at night; but at other seasons they are allowed to roam about, and, in order to prevent them from wandering too far, their fore feet are tied together. The males are never castrated, and the best are always sold off by the washermen, which are principal causes of the degeneracy of the breed. At three years of age the females begin to breed, and some have every year a colt, while others breed once only in three years. The colt sucks, till its mother is again big. The idea of the milk being ever used by men is reckoned too absurd to be credible. A common mark of disgrace for criminals is the being forced to ride on an ass; and even the washermen are unwilling to acknowledge that they ever defile themselves so far as to ride on this animal. A good male, three or four years old, sells for 10 *Fanams* (6*s.* 8½*d.*); a female of the same age sells for the same price. An ass's burthen is reckoned thirty-six *Seers* of *Ragy*, or about 76 lb.; with which they will daily travel two cosses, or nearly seven miles.

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21st *July*.—I went five cosses to *Tonday Bava*, near *Mahá-kálí-durga*, passing chiefly through a barren hilly country, totally uncultivated, and covered with bushes or coppice-wood. It is part of a hilly chain that comes toward the west from the north of *Colar*, and meets at right angles the chain that extends north from *Capala-durga*. This chain running east and west is called a *Ghat*, and the country to the north of it is said to be below the *Ghats*. The whole of it is watered by branches of the *Utara Pinákaní*, or *Pennar*.

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The nature of the crops here is very different from that in the southern parts of the country.

July 21. Customs of the *Baydaru.*

The *Baydaru* are of two kinds, *Karnata,* and *Telinga.* The former wear the *Linga,* and are said to be numerous near *Raya-durga.* Those in the north-eastern parts of the *Mysore Rája's* dominions are of *Telinga* descent, and retain that language. They seem to be the true *Súdra* cultivators and military of *Telingána,* and to have been introduced in great numbers into the southern countries of the peninsula, when these became subject to *Andray* or *Telingána* princes. The *Telinga Baydas* neither intermarry, nor eat in common with those of *Karnata* extraction. Among themselves they can all eat together; but, in order to keep up the purity of the race, they never marry, except in families whose pedigree is well known. Like the *Bráhmans,* they are divided into a number of families, of which a male and female can never intermarry. They have also among them a race of nobles called *Chimalas.* Among these are the hereditary chiefs, who punish transgressions against the rules of cast, and who are called *Gotugaru.* From this class of nobles were also appointed the feudal lords, vulgarly called *Polygars;* but who assumed to themselves the *Sanskrit* title of *Sansthánika.* Civil differences in this tribe are made up in assemblies of the heads of families, the hereditary chiefs having become almost extinct. No heavier punishment was ever inflicted by these than the mulct of an entertainment. The *Baydaru* ought by birth to be soldiers, and hunters of tigers, boars, deer, and other noble game, and ought to support themselves by cultivating the ground. They are both farmers and hinds, and sometimes act as *Talliari,* a low village officer. They are permitted to eat fowls, sheep, goats, hogs, deer, and fish, and to drink spirituous liquors. The men are allowed to take many wives, but can only divorce them for adultery. The women are very industrious, both at home and in the field; and even after the age of puberty continue to be marriageable. Widows are not expected to sacrifice themselves to the manes of their husbands; but they

cannot marry a second time. In some families of the *Baydaru*, however, they may be received as concubines. They bury the dead. They believe, that after death wicked men become devils, and that good men are born again in a human form. The spirits of men who die without having married, become *Virika;* and to their memory have small temples and images erected, where offerings of cloth rice, and the like, are made to their manes. If this be neglected, they appear in dreams, and threaten those who are forgetful of their duty. These temples consist of a heap, or *cairn* of stones, in which the roof of a small cavity is supported by two or three flags; and the image is a rude shapeless stone, which is occasionally oiled, as in this country all other images are. Female chastity is not at all honoured in this way. This superstition seems rather local, than as belonging to this cast; for it is followed by all the *Súdras* of this part of the country, and I have not observed it any where else. The *Baydaru*, in consequence of vows made in sickness, take *Dáseri*, that is, dedicate themselves to the service of God, both perpetual and temporary. The proper god of the cast is *Trimula Dévaru*, to whom a celebrated temple is here dedicated. It is an immense mass of granite on the summit of a low hill. Under one side of it is a natural cavity, which is painted red and white with streaks of reddle and lime. In this cavity is placed a rude stone, as the emblem of the god; and it is attended by a priest or *Pujári* of the cast called *Satánana.* To this place all the *Baydaru* of the neighbourhood once a year resort. The *Pujári* then dresses some victuals; and having consecrated them, by placing them before the idol, he divides them among the people. *Trimula*, it must be observed, is the name of the hill at *Tripathi*, on which the celebrated temple of *Vishnu*, under the name of *Vencaty Rámana*, is built. The *Baydaru* never pray to any of the *Saktis*, except *Marima*, who inflicts the small-pox on those who offend her. To this terrible power they offer sacrifices, and eat the flesh. Their *Guru* is *Trimula Tata Achárya*, an hereditary chief of the *Sri Vaishnavam Bráhmans*, who gives

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them *Chakrántikam*, *Upadèsa*, and holy water, and, when he visits the place, receives from each person one *Fanam*. At marriages, and at the annual commemoration of deceased parents, the *Panchánga* acts as *Puróhita*.

July 22. Appearance of the country.

22d *July*.—I went three cosses to *Assauru*, a village inhabited by cultivators, and said to contain five hundred houses, but which looks wretchedly poor. On the way, we passed a place which, although not so large, was better built. It is called *Bomma Samudra*. The country in general is level, but contains several ridges of barren hills. It is intersected by the channels of several mountain torrents, which are wide, and full of sand; but even now they contain no water. I am informed, that sometimes, for a little while after very heavy rains, they are full. The soil in many places is a rich black clay; and, there being no made roads in any part of this country, the travelling in the rainy season is very bad. The cultivation is wretched, and slovenly; a great deal, that has formerly been cultivated, is now waste; and much that appears to possess a very good soil has never been reclaimed. I observed several of the reservoirs out of repair. The people attribute this state of the country, partly to the oppression of the former government, and partly to an uncommon scarcity of rain that has prevailed for ten years. The width and dryness of the channels made by the torrents of former seasons seem to confirm the last mentioned cause. They say, that the country does not want people; but that, by long sufferings, they are disheartened from working. Last year they had no sickness among their cattle, but this fatal disorder has now begun to make its appearance.

July 23.

23d *July*.—I went three cosses to *Doda Bailea*, a fortified village inhabited by farmers, which contains about fifty houses. By the way I passed two other such places, near which there was some cultivation; but the whole of the other parts of the country was covered with bushes or coppice-wood. The ground was no where too steep for cultivation; and, except in a few stony places, the soil

seemed tolerably good. I saw no appearance of its ever having been cultivated. There is here a small river, from the bed of which, as from the channel of the *Palar* at *Vellore*, trenches may be drawn, so as at all seasons to give the fields water. At present it contains no water above ground. Many of the torrents between this and the *Pennar*, in the newly acquired dominions of the *Nizam*, afford a similar supply of water. In others, the streams are shut up by dams or *Anacuts*, and forced into large reservoirs. The people in the *Nizam's* share of the *Sultan's* dominions have already experienced the imbecility and rapacity of that government; and have begun to retire into the dominions of the *Mysore Rája*, where there is plenty of room. For a century past this place has been subject to *Mysore*, although it was separated from the capital by the Mussulman government of *Sira*. In the mean time many of the neighbouring *Durgas*, or hill forts, with the territories belonging to them, continued subject to their original *Polygars*, who were mostly robbers, till the whole were finally expelled by *Tippoo*. In the war of Lord Cornwallis this place suffered extremely, as *Purseram Bhow's* army was encamped some days in the neighbourhood. This, joined to the famine, and to *Tippoo's* government, both before and since, has reduced the country and population to a very low state.

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July 23.

24th *July*.—I went two cosses to *Madhu-giri*, or Honey-hill, a strong *Durga*, which is surrounded on all sides by hills. From *Bailea*, these hills appeared as a connected chain, and are a part of that ridge which runs north from *Capala-durga*; but on entering among them, I found narrow vallies winding through in all directions. The hills are rocky and bare; but in many places the soil of the vallies is good. In some places there are coco-nut gardens; but many of the cleared fields are now unoccupied, and a great deal of good ground seems never to have been reclaimed.

July 24.

Madhu-giri.

The view of *Madhu-giri*, on approaching it from the east, is much finer than that of any hill-fort that I have seen. The works here

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make a very conspicuous appearance; whereas in general they are scarcely visible, being hidden by the immensity of the rocks on which they are situated. On the fall of the *Vijaya-nagara* monarchy, this place belonged to a *Polygar* named *Chiccuppa Gauda;* but more than a century ago it came into the possession of the *Mysore* family. *Mul Rája* built the fortress of stone, which formerly had been only of mud. Here also he built a palace; in the suburbs he rebuilt a large temple; and near it he made fine gardens, and the handsomest building for the reception of travellers that I have seen in India. Unfortunately, it is now ruinous. The fortifications were improved to their present form by *Hyder;* the place in his time was a considerable mart, and possessed some manufactures, having a hundred houses occupied by weavers. A *Marattah* chief, named *Madi Row*, held it for seven years of *Hyder's* government, having seized it after the victory which his countrymen gained at *Tonuru.* When he was forced to retire, he plundered the town of every thing that he could carry away; and with the exaggeration usual in *Hindustan*, the place is said to have then been so rich, that he disdained to remove any thing less valuable than gold. The oppressions of *Tippoo* had nearly ruined the place, when the destruction was completed by the *Marattah* chief *Bulwunt Row*, one of *Purseram Bhow's* officers. Although he besieged the fort five months, he was unable to take it. His army was numerous, exaggerated by native accounts to 20,000 men; but they were a mere rabble, a banditti assembled by the *Polygars*, who formerly were dispossessed of the neighbouring strong-holds, and who then had ventured back under the protection of Lord Cornwallis. When that nobleman gave peace to the *Sultan*, these ruffians had entirely ruined every open place in the neighbourhood; but they were immediately afterwards dispersed by the *Sultan*, who pursued with so much activity the 500 *Marattah* horse which had joined this rabble, that twenty only escaped with their chief. The place has ever since been in a very languishing

condition, but is beginning to revive. *Purnea* has appointed a brother-in-law of his own to be *Amildar*, and gives the inhabitants considerable encouragement.

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Cultivation in the country north from the *Ghats* of *Nandi-durga*.

From the 25th till the 29th of *July*—I remained at *Madhu-giri*, chiefly employed in taking an account of the cultivation of this country; which, as I have observed before, differs considerably from that to the southward of *Nandi-durga*. It also differs from that on the west side of this ridge of hills towards *Sira*; and its extent may be reckoned from thence east to near *Chica Bala-pura*, and from *Nandi-durga* north to *Penu-conda*.

Weights and Measures.

Previous to examining the state of agriculture here, it must be observed, that *Madi Row* introduced a new set of weights and measures, which, notwithstanding all *Tippoo's* efforts to the contrary, continue still to be used. They are explained in the accompanying table.

Table of Weights and Measures at *Madhu-giri*.

The *Cucha* Weight.

lb. 0,025244	= 1 *Dudu*.		
22 *Dudus*	= 1 *Seer*	= lb. 0,555368.	
48 *Seers*	= 1 *Maund*	= lb. 26,657664.	

The *Pucka* Measure.

Cubical inches 74,81166 &c.	= 1 *Seer*.		
1½ *Seer*	= 1 *Puddy*	= Winchester bushel	0,054199
4 *Puddies*	= 1 *Bulla*	- - - - - - - -	0,208777
16 *Bullas*	= 1 *Wocula*, or *Cologa*	- -	3,40436
20 *Woculas*	= 1 *Candaca*	- - - - - - -	66,808333 &c.

All accompts are kept in *Canter'-raya Pagodas* and *Fanams*. In all the districts near this, the rate of exchange, for different coins, is nominally regulated according to the *Niruc*; that is, made by the officer commanding at *Pauguda*, or *Paughur* as we call it; but the *Shrofs (Saráf)*,' or money-changers, vary a little from this; not from a greater accuracy in the valuation of the coins, but for reasons that are prevalent all over India, and the nature of which is

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known to this class of men alone. The *Batta*, or money paid to the *Shrof* for exchanging a *Sultany Pagoda* into *Fanams*, is 2 *Dudus*, or nearly 0,9 per cent. and by those who have lived in Bengal must be considered as very moderate. Besides, the *Shrof* values the *Fanam* at $\frac{1}{121}$ part less than the *Niruc* does; yet the value put on it by the officer is less than its intrinsic worth; for the regulation which he has made fixes its value at $\frac{1}{11}$ of a *Sultany Pagoda;* and 12,913 *Fanams* contain as much pure gold, as the *Sultany Pagoda.* In all calculations I shall use the *Seringapatam* rate of exchange, and take the *Fanam* at $\frac{1}{12}$ of a *Pagoda.* The Company's *Rupee* passes here for 56 *Dudus*, and the *Sultany* for $59\frac{1}{4}$; whereas the real proportion is 56 to $56\frac{1}{2}$.

Trimula Nayaka.

The first day that I passed here was very disagreeable; as I detected the people lying to me in the grossest manner; and on account of the *Amildar's* connections, the messenger who accompanied me was afraid to speak. I at length met with an acting *Gauda*, or renter of some villages, named *Trimula Nayaka*, from whom I received the intelligence which I consider as the most accurate that I procured during my whole journey. *Trimula Nayaka* is the family name of the *Madura Rájas*, and in fact my new acquaintance was of that house. His ancestor was a brother of the then reigning prince, who, in a dispute, was savage enough to threaten the life of so near a relation. The younger brother in this necessity was forced to emigrate, and came to this country, where many other *Polygars* of *Telinga* extraction then lived; for it must be observed, that the last race of *Madura Rájas* were of *Telinga* descent; and were *Polygars*, who assumed independence on the overthrow of their sovereign, the king of *Vijaya-nagara.*

Division of lands.

The cultivated lands in this country, defined, as before, as extending from *Nandi* to *Penu-conda*, and from *Chica Bala-pura* to *Madhu-giri*, are as usual divided into two kinds: *Nirarumba*, or watered-lands; and *Pyrarumba*, or dry-field.

Nirarumba, or watered-lands.

The watered-land here includes all the grounds called *Tota*, or

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Bagait, whether employed for palm plantations, or for kitchen-gardens. It is watered partly by reservoirs, or *Carays;* partly by *Callivays,* which are channels cut from rivers; and partly by the machines called *Capily,* and *Yatam.* The quantity of watered-land is nearly equal to that of dry-field; and, besides that reserved for palm trees and kitchen stuffs, and which is not considerable, is divided into two kinds. These two divisions are nearly equal in extent; the one is cultivated chiefly for rice, transplanted *Ragy,* and *Jola;* the other with wheat, *Carlay, Mentea,* and *Jirigay.* The extent, however, of all the watered land is reckoned by the quantity of rice seed that would be required to sow it. By measuring two fields, and taking the medium, I estimate the *Candaca* of watered-land to be 30 acres.

Articles raised on watered-ground.

In the annexed table will be seen the articles that are here commonly cultivated on the watered-grounds, with several particulars relating to each.

Grains cultivated on watered-grounds at *Madhu-giri.*	Months required to ripen.	Quality.	Seed.		Produce. In a good crop.			Produce. In an indifferent crop.		
			On a *Cologa-land.*	On an Acre.	On a *Cologa-land.*	Increase folds.	On an Acre.	On a *Cologa-land.*	Increase folds.	On an Acre.
			Seers.	Pecks.	*Seers.*		W. Bushels.	*Seers.*		Bushels.
Rice or *Paddy*, *Doda Butta* - - - - - -	$4\frac{1}{2}$	Large -	96	8,88435	1920	20	44,427	1536	16	35,541777
Cari Chaningy - - - - - -	4	Ditto -	96	8,88435	1920	20	44,427	1536	16	35,541777
Bily Chaningy - - - - - -	4	Ditto -	96	8,88435	1920	20	44,427	1536	16	35,541777
Caimbutti, or *Doda Caimbutti* - -	5	Middle	92	8,515333	2112	23	48,869934	1440	$15\frac{2}{3}$	33,32
Gayruda, or *Sana Caimbutti* - -	4	Ditto -	92	8,515333	1248	$13\frac{3}{9}$	28,877333	672	$7\frac{3}{10}$	15,55
Bily Sanabutta - - - - - -	5	Small -	88	8,145	2400	$24\frac{2}{7}$	55,533684	1724	$19\frac{3}{4}$	39,984554
Cari Sanabutta - - - - - -	$5\frac{1}{2}$	Ditto -	88	8,145	2880	$32\frac{4}{5}$	66,635342	1920	22	44,427
Put'-Rajah, or *Yalic-Rajah* - -	4	Ditto -	88	8,145	1440	$15\frac{11}{15}$	33,32	960	$10\frac{10}{11}$	22,213684
Tripetty Sanabutta - - - -	$3\frac{1}{2}$	Ditto -	88	8,145	1536	$17\frac{5}{11}$	35,541777	900	$10\frac{10}{11}$	22,213684
Bily Jola in land reserved for its own cultivation - -	$4\frac{1}{2}$	- - -	$7\frac{1}{2}$	0,694183	1728	$230\frac{6}{15}$	39,984554	1440	192	33,32
Ditto in place of the *Vaisakha* crop after *Ragy* -	$4\frac{1}{2}$	- - -	$7\frac{1}{2}$	0,694183	1152	$153\frac{9}{15}$	26,65625			
Ditto in place of the *Vaisakha* crop after rice -	$4\frac{1}{2}$	- - -	$7\frac{1}{2}$	0,694183	768	$102\frac{8}{15}$	17,770909			
Agara Jola in place of the *Vaisakha* crop after *Ragy* -	$4\frac{1}{2}$	- - -	$7\frac{1}{2}$	0,694183	768	$102\frac{8}{15}$	17,770909			
Ditto in place of the *Vaisakha* crop after rice -	$4\frac{1}{2}$	- - -	$7\frac{1}{2}$	0,694183	576	$76\frac{4}{5}$	13,328125			
Mobu Navony in place of the *Kartika* crop - - -	4	- - -	9	0,833	768	$85\frac{1}{3}$	17,770909			
Bily Navony in place of the *Vaisakha* crop - - -	4	- - -	9	0,833	480	$53\frac{1}{3}$	11,106842			
Barugu in place of the *Kartika* crop - - - -	$2\frac{1}{2}$	- - -	24	2,221368	576	24	13,328125			
Gur'-Ellu in place of the *Vaisakha* crop - - -	4	- - -	6	0,555342	384	64	8,885454			
Wheat *Juvi Godi* - - - - - - - -	4	- - -	24	2,221368	1152	48	26,65625			
Hotay Godi - - - - - - - -	4	- - -	24	2,221368	576	24	13,328125			
Carlay - - - - - - - - - -	4	- - -	20	1,851	480	24	11,106842			
Mentea - - - - - - - - - -	3	- - -	24	2,221368	672	28	15,55			

I shall now detail the other circumstances which attend their cultivation.

On the first division of the watered-lands, rice is the greatest crop; and, when there is plenty of water, the same ground in the course of the year gives two crops, which, from the respective times of harvest, are called the *Kártika* and *Vaisákha* crops. The former, provided two crops are taken, is the most productive; but, if the *Kártika* be omitted, the *Vaisákha* gives a greater return than the *Kártika* alone would have given; not, however, equal to the produce of both crops. The quality of the grain in both crops is the same. For the reasons mentioned at *Colar*, the *Vaisákha* crop, although raised in the dry season, is the one most regularly taken. For this crop all the kinds of rice may be sown; for the *Kártika* crop the *Bily Sanabutta*, and *Cari Chaningy*, are never sown; as with rain they are apt to lodge. The soil used for *Tripetty-Sanabutta*, *Bily-Chaningy*, *Cari-Chaningy*, and *Put'-Rajah*, is *Marulu*, or sandy. The others require a clay, which in the low grounds is always black. The red soil is always confined to the rising grounds, and is therefore never cultivated for rice, except when it can be watered by machines; and, if the water be more than 31½ feet from the surface, these are never used. Two men and four oxen can, by means of the machine called *Capily*, supply an acre and a half of ground with water sufficient to raise a crop of rice. One set works four or five hours in the morning; and the other as much in the evening. In the day the men do little jobs; but the cattle do no other work. When this machine is used, the government does not divide the crop with the farmer; but, on account of his extraordinary labour, takes a fixed rent of four seeds, or else contents itself with one quarter of the produce. Sixteen seeds may, therefore, be considered as the average crop of this country; but then the seed, it must be observed, is sown very thick. Little rice is, however, watered by machinery; and the kinds chosen are those which require the shortest time to come to maturity.

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Manner of preparing the seed.

The only manner of cultivating rice, that is in use here, is the *Mola*, or sprouted-seed; the manner of preparing which is as follows. The ears must be cut off, the grain beat out immediately, and then dried in the sun three or four days. It must be preserved in straw or in jars. When wanted for sowing, it must be exposed to the sun for a day, and soaked in water all the following night. It is then put upon a layer of the leaves of the *Yecada*, or *Asclepias gigantea*, or of the *Harulu*, or *Ricinus Palma Christi*, mixed with sheeps dung, and is surrounded by stones, so as to keep it together. It is then covered with *Bandury* leaves (*Dodonea viscosa Willd:*), and pressed down with a stone. Next morning the upper leaves are removed, and a pot of water is thrown on the seed, which must be turned with the hand, and then covered again with the leaves and stone. Daily, for three or four times, this operation must be repeated, and then the sprouts from the seed will be almost an inch long.

Cultivation for the *Kártika* crop.

For the *Kártika* crop, plough seven times in the course of thirty days, the ground all the while being inundated. In the next place manure the ground with leaves, and tread them into the mud. Then let off the water, and sow the seed broad-cast, covering it with a little dung. On the 4th day cover the ground with water, and immediately afterwards let it run off. Repeat this daily, till the eighth time, after which the field must be kept constantly inundated to the depth of one inch for ten days, and four inches for the remainder. The weedings are at the end of the 6th, 10th, and 12th weeks from sowing. The season for ploughing continues all the months of *Jyaishtha* and *Ashádha*, which this year was from the 24th of May to the 21st of July.

Cultivation for the *Vaisakha* crop.

For the *Vaisakha* crop the same process is followed; but the ploughing season is from the 15th of *Aswaja* till the last of *Márgasirsha*; which, this year, will be from the 3d of October till the 16th of December. By this time the whole seed must be sown; and the nearer it is done to it, the better.

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Manure of leaves.

The leaves used here as a manure for rice-land are those of the *Coghi*, or *Galega purpurea;* of the *Haingay*, or *Robinia mitis;* of the *Yecada*, or *Asclepias gigantea;* of the *Devadarum*, or *Erythroxylon sideroxyloides*, E. M.; of the *Calli*, or *Euphorbium Tirucalli;* and of the *Huts' Ellu*, a plant not yet described.

Transplanted *Ragy*.

From rice ground, in place of the *Kartika* crop, *Sussi*, or *Nat' Ragy*, is often taken. This is the same with the *Tota Ragy*, before mentioned, and is transplanted and watered like rice. The following is the process for raising the seedlings. The season for sowing lasts *Vaisákha, Jyaishtha*, and *Ashádha;* which this year is from the 23d of April till the 21st of July; but the process in any one field is finished in from 22 to 24 days. With a hoe dig a small spot of ground to the depth of four inches, and manure it with dung. Then divide it into small squares, about two cubits each way; sow the seed very thick, cover it with dung, and water the squares with a pot. This must be repeated every other day until the plants are fit for removing, which is from 22 to 24 days. When the seed is sown, the field into which it is to be transplanted must have five ploughings. It is then dunged, and divided into plots about three or four cubits square, which are surrounded with small ridges to confine the water. These plots are filled with water, and the young *Ragy* is transplanted into them. In order to remove the plants, there is no occasion to water the plots in which they were raised, as the people of *Colar* recommended. To procure a full crop, the *Ragy* ought once in eight days to be watered; but those who are indolent content themselves with giving water once in eleven or twelve days. On the 15th day after transplanting, it must be weeded with a small hoe called *Molu potu* (Figure 35). The *Ragy* raised on dry ground is reckoned of rather a superior quality; but the produce of this is great. It thrives on any soil in which rice will grow. One machine of the kind called *Capily* will water $2\frac{1}{4}$ acres of *Ragy*.

Bily Jola.

In place of the *Vaisákha* crop of rice, *Bily Jola* is sometimes sown. This must be followed by a *Kartika* crop of *Ragy*, as after it the

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produce of rice would be very small. The *Jola* also thrives best after a *Kartika* crop of *Ragy*. The following is the process of cultivation. Immediately after cutting the *Kartika* crop, in *Kartika*, *Márgasírsha*, and *Paushya* (19th October to the 14th January), plough five times, and manure with equal parts of dung, and of mud from the bottoms of tanks, mixed with the leaves of the *Robinia mitis*. A man then draws furrows with a plough, and another places the seed in the furrows at the distance of four or five inches. By the next furrow it is covered. Previous to being planted, the seed must have been soaked in water. In place of using a rolling-stone, the field is then smoothed by drawing over it a plank, on one end of which a man stands, and by this means that forms a low ridge; and thus throughout the field, at the distance of the length of the plank, which is six feet, parallel rows of ridges are produced. The intermediate spaces are divided into oblong plots by forming with the hand ridges, which at every eight or twelve cubits distance cross the others at right angles. At the same time the areas of the plots are exactly levelled. Before sowing, there must have been rain enough to moisten the ground, otherwise water must be given. At the end of a month the field must have another watering; and once in eight days, until the grain be ripe, this must be repeated.

Agara Jola.

In place of the *Vaisákha* crop on rice ground, the *Agara Jola* is sometimes sown. It is cultivated exactly as the *Bily Jola*, but ripens in four months. One *Capily*, requiring the labour of three men and four bullocks, can water $2\frac{1}{11}$ acres of *Jola land* that are divided into eight portions, of which one is daily allowed water.

Mobu Navony.

In place of the *Kartika* crop, should there be no water in the reservoir, a species of *Navony*, called *Mobu*, is sometimes taken from rice ground, as the usual quantity of rain is sufficient to ripen it. In *Chaitra* and *Vaisákha*, or from about the middle of March till the middle of May, plough twice, manure with dung, and then plough twice again. After a shower of rain, sow, either broad-cast,

or with the drill. If the day then dry up, smooth the field with a bunch of thorns; but, if the day be damp, use the native harrow.

July 25, &c. *Bily Navony.*

In place of the *Vaisákha* crop, when there is a deficiency of water, the kind of *Navony* called *Bily* is sometimes sown on rice-ground. For this, plough four times in *Kártika* (19th October—16th November). Manure is not necessary, but may be given with advantage. The field must then be watered, and ploughed a fifth time; then it must be sown broad-cast, and divided into plots like a field of *Jola.* Once in eight days water is given. The crop of rice following *Navony* is not so good as that after *Ragy,* but better than that after *Jola.*

Not having had an opportunity of comparing these two kinds of *Jola* and *Navony* when in flower, I cannot say whether or not, in a botanical sense, they are specifically different. It is probable, however, that they are mere varieties of the *Holcus sorghum,* and *Panicum Italicum.*

Barugu, or *Panicum miliaceum.*

In place of the *Kartika* crop, a very little *Barugu* is sometimes sown on rice-ground; but this is still worse for the succeeding crop of rice than even *Jola* is. It is chiefly sown by very poor people, who are in want of an immediate subsistence; for it ripens very quickly.

Sesamum.

In place of the *Vaisákha* crop, *Sesamum,* of the kind called here *Gur' Ellu,* is also sown on rice-ground. For this, in *Kartika, Márgasírsha,* or *Paushya* (19th October—14th January) plough four times. Then water, and plough again. Sow the seed broad-cast, and divide the field into plots like those used for *Jola;* at the same time channels, for conducting the water, are of course formed. Once in the twelve days it receives water.

Sugar-cane.

The only other thing cultivated on this kind of watered-land is sugar-cane. Those who raise this valuable article divide their field into two equal portions, which are cultivated alternately, one year with sugar-cane, and the other with grain; the cane, however, thrives better, when the field, in place of being cultivated for grain,

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is allowed an intermediate fallow; but then the loss is heavy, as after cane the grain thrives remarkably. The grains cultivated are rice, *Ragy*, and *Jola;* the first injures the cane least, and the *Jola* injures it most. The kinds of cane cultivated are the *Restalli* and *Maracabo.* In *Kartika* and *Márgasírsha* (19th October—16th December) plough seven times, and manure with sheeps' dung and leaves. Then with the hoe called *Yella Kudali,* form channels at a cubit's distance. In these also, at a cubit's distance, plant singly shoots of the cane, each about a cubit in length. If the soil be poor, they must be planted rather nearer. They are laid down in the channels, which are filled with water, and then people tread the shoots into the mud, by walking through each channel. A *Colaga* of land requires 18000 shoots, on which *data* it ought to contain $1\frac{8}{10}$ acre, in place of $1\frac{5}{10}$ that were given me by the measurement of two fields. In all my calculations, however, I have considered it as of the latter extent. If the soil be of a moist nature, the cane has water once in eight days; but, if it dry quickly, it must, until ripe, be watered once in six days, except when there is rain. At the end of the first month the field must be hoed with the *Cali Kudali* (Figure 35), which is the very same instrument, that in the cultivation of *Ragy* is called *Molu potu.* The misapplication of these names is thought to be unlucky. Near each cane, as a manure, some leaves of the *Robinia mitis* are then placed, and they are covered with a little mud; so that the channels are now between the rows of cane, and the canes grow on the ridges. When these are $2\frac{1}{2}$ cubits high, they are tied up in bunches of three or four; and as they grow higher, this is three or four times repeated. Twelve months after planting the crop season begins, and in six weeks it must be finished. 250 *Maunds* of *Jagory* is here reckoned a good crop from a *Colaga* of land, which is very nearly 15 hundred weight an acre; 150 *Maunds,* which is about nine hundred weight, from the acre, is reckoned a bad crop. Black clay gives the greatest quantity of *Jagory,* but it

is of a bad quality. A sandy soil produces least *Jagory*, but that of a high value. One machine called *Capily* can water an acre and a half of sugar-cane-land.

Bily Jola.

A few fields of watered-land are entirely allotted for the cultivation of *Bily Jola*, or *Holcus sorghum*. The soil of these is a rich black mould, but does not require much water. It is often watered by the *Capily*, in which case the farmer pays a fixed money-rent. If it receive a supply from a reservoir or canal, government takes one half of the produce. Only one crop a year is taken. The produce is great; not only as an immense increase on the seed sown, but as affording a great deal of food. The produce of some kinds of rice is apparently greater; but it must be considered, that one half of that grain consists of husk, whereas the whole of *Jola* is eatable. Begin to plough in *Vaisákha* (23d April—23d May), and in the course of seven months plough eight or nine times. Then manure with dung, mud, and the leaves of the *Robinia mitis;* and, if there be no rain, water the field, and sow the seed in the manner before described. The waterings, after the first month, must be given once in twelve or fourteen days. In some villages the farmers weed the *Jola* when it is six weeks old; in others, they do not take this trouble. Some people around every field of *Jola* plant a row of *Cossumba (Carthamus tinctorius)* seeds, and the prickly nature of that plant keeps away cattle.

Wheat-land.

The cultivation of the other division of watered-land, in this district, is reckoned the most profitable to the farmer. The soil must be a black clay, in any situation where a little water can be procured.

In this ground, wheat of the kind called *Juvi Godi* is the most common crop. It seems to be the *Triticum monococcum* of Linnæus. It is but a poor grain, and five twelfths of it consist of husks. Any time in *Paushya* (17th December—14th January) plough once; next day, if there be no rain, water the field, and plough again across, dropping the seed in the same manner as in sowing *Jola*. The plots

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must be formed in the same manner. It gets no manure nor weeding, and requires only three waterings, on the 40th, 60th, and 80th days. It is much subject to disease, and not above one crop in four is good. After reaping the wheat, the field, in order to expose the soil to the rain, must be immediately ploughed.

Carlay, or *Cicer arietinum.*

Another considerable crop, raised on this ground, is *Carlay* mixed with *Cossumba*, or *Carthamus tinctorius.* No attention is paid to the alternation of this crop with the wheat. Sometimes they are every year changed; and again, for two or three successive years, the same crop is taken from the same ground. The *Carlay* is cultivated exactly in the same manner as the wheat, only it requires no water, and the field is not divided into plots. Throughout the field, at the distance of three cubits, the *Cossumba* seed is planted in drills. The dew resting on the leaves of the *Carlay* is said to be acid, and is esteemed a powerful medicine, especially for restoring the appetite. It is collected by spreading over the field at night a muslin cloth, from which in the morning the dew is wrung.

Mentea and *Jirigay.*

In some parts of this ground, which it is not necessary to choose very rich, are sown *Mentea* and *Jirigay;* the former is the *Trigonella Fœnumgræcum,* and the latter is an umbelliferous plant, which I did not see.

The *Mentea* cultivated in gardens is always used green. When intended for seed or for the grain, it is always raised in this manner: plough twice at the same season as for *Carlay;* divide the field into plots like a kitchen garden; sow the seed, cover it with the hand, and, according to the nature of the soil, water once in from ten to fifteen days. The ripe seed of this plant sells very high, and is reckoned the most delicate kind of pulse. The young leaves are used as greens, and the unripe legumes are put into *Curries.*

The *Jirigay* is cultivated exactly in the same manner. Sometimes it is sown on the ground that is usually employed for transplanted *Ragy;* but there it does not thrive so well.

Wheat called *Hotay.*

When reservoirs dry up before the end of *Mágha,* or middle of

February, which however is not often the case, their bottoms, which consist of very rich mould, are cultivated with a kind of wheat called *Hotay Godi*, which is the *Triticum spelta* of botanists. This is a much superior grain to the *Juvi*, and contains very little husk. Plough the ground as it dries up, and drop the seed in the furrows after the plough. Then, in place of a rolling stone, smooth the field with a plank. It ripens without farther trouble.

In this kind of ground are sometimes put *Carlay* and *Cossumba*. The crop in the bottom of reservoirs is divided into three shares; one of which goes to the person who furnishes the seed, one to government, and one to the cultivator.

Dry-field *Ragy*, or *Cynosurus Corocanus*.

The most considerable crop cultivated on *Pyrarumba*, or dry-field, is *Ragy*. Besides what is cultivated on watered land, it forms two-thirds of the whole dry-crop. On the dry-fields are raised two kinds of it; the *Gyda*, and the *Doda*. The former ripens in four months, and the latter in four and a half; and the latter is esteemed both the best in quality, and the most productive; but when the rains set in late, as it requires less time to ripen, the *Gyda* is preferable. The best soil for *Ragy* is red, next black, then ash-coloured, and the worst is *Marulu*, or that which contains much sand. The best soils are generally reserved for *Ragy*, which always requires more or less dung: and, if plenty of that could be procured, it might be raised on even the most sandy soils to great advantage. The first and second crops would be poor; but, when the field came to be saturated with manure, the *Ragy* would be as productive as usual on the good soils. Very few farmers here, however, have at any time a sufficient quantity of manure; nor can it be ever expected that they should, as the custom of stall-feeding cattle for slaughter is by them considered abominable. During *Chaitra, Vaisákha*, and *Jyaishtha*, or from about the middle of March till the middle of June, in the course of thirty days plough five times. After the first ploughing, put on the manure. The seed is sown with a drill, like that used at *Colar*. For every *Colaga* of land,

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which here is of the same extent for wet and dry grains, put into the *Curigay* (Figure 26) 24 *Seers* of *Ragy*, and 1/4 *Seer* of *Sashivay*, or mustard, and into the *Sudiky* (Figure 26) put 9 *Seers* of *Avaray*, or of *Tovary*, or of both intermixed. Having drilled in the seed, cover it with the harrow. On the 20th day hoe with the *Cuntay;* on the 28th day repeat this, drawing the *Cuntay* in a direction which crosses its former one at right angles. On the 36th and 42d days repeat this. The mustard, as it ripens, is pulled, partly before, and partly after the *Ragy*. The pulses require six months and a half to ripen. The *Ragy* is improved by trampling, or by frequent repetitions of the hoe drawn by oxen. To answer the same purpose, a flock of sheep are sometimes driven over it. These processes destroy at least 3/4 of the pulses. Although in my account of the cultivation near *Seringapatam*, I have hinted at an excuse, the farmers here can assign no reason, but custom, for sowing such an incongruous mixture. In a good crop, a *Colaga* of land will produce 13 *Colagas*, or 52 seeds of *Ragy;* 12 *Seers*, or 48 seeds of mustard; and 2 *Colagas*, or 21 1/3 seeds of the pulses.

		Pecks.		Bushels.
An acre sows of *Ragy*	-	2,221368	and produces -	28,877333
Mustard		0,023139	- - -	0,416509
Pulse	-	0,556332	- - -	4,4427
Total	-	2,800839		33,736542

Shamay, or *Panicum miliare*, E. M.

On dry-field, the next most considerable crop is *Shamay;* of which there are two varieties, the black, and the white. As they require the same length of time to ripen, they are sometimes sown separately, and sometimes mixed. The best soil for *Shamay* is red or ash-coloured, containing a good deal of sand, and in this country is common on high places. Without much manure, this ground does not bear constant cropping. After resting a year, or more, it is first cultivated for *Huruli*, and next season for *Shamay*. If manure can be procured, a crop of *Ragy* is taken, and then it has another

fallow. Dung being a scarce article, in place of the *Ragy* a second crop of *Shamay* is taken; but it is a bad one. If the fallow has been long, and high bushes have grown up, after burning these, the crop of *Huruli* will be great, and two or three good crops of *Shamay* will follow. When good *Ragy* soil has for a year or more been waste, and is to be brought again into cultivation, the first crop taken ought to be *Shamay;* for *Ragy* thrives very ill on land that is not constantly cultivated. In this case, the *Shamay* gives a great quantity of straw, but little grain. When the rains have failed, so that the *Ragy* has not been sown, or when, in consequence of drought, it has died, should the end of the season be favourable, a crop of *Shamay* is taken from the fields that are usually cultivated with *Ragy*. This crop also runs to straw, and the following crop of *Ragy* requires more dung than usual. In the course of thirty days, any time between the middle of April and middle of July, plough three or four times. Then after a good rain, or one which makes the water run on the surface of the ground, harrow with the rake drawn by oxen, and sow the *Shamay* seed with the drill, putting in with the *Sudiky* (Fig. 26) rows of the pulses called *Huruli* or *Tovary*. In four months, without farther trouble, it ripens. The seed for a *Colaga*-land is 24 *Seers* of the *Shamay* and 6 *Seers* of the pulse. In a good crop, the *Shamay* will produce 10 *Colagas* of *Shamay*, and two of *Tovary*, or one of *Huruli*. This, reduced to English measures, will be nearly as follows:

	Pecks.		Bushels.
One acre sows of *Shamay*	2,221368	and produces	22,213684
Tovary	0,699133	- -	5,552736
Total	2,920501	- - -	27,76,642

The *Shamay* straw is but bad fodder.

Huruli, or Horse-gram.

The next most considerable crop is the pulse called *Huruli*, the only kind of which, cultivated here, is the white. Except after *Car'-Ellu*, or upon new ground, it never succeeds. The longer the

CHAPTER VI. July 25, &c. ground has been waste, especially if it has been overgrown with small bushes of the *Tayngadu*, or *Bandury*, (*Cassia auriculata*, and *Dodonea viscosa* Wild.) so much the better for *Huruli*. It grows best upon ash-coloured soil, and next to that prefers a red soil, in which there is much sand. In *Srávana*, or from about the middle of July to the middle of August, burn the bushes; and either then, or in the course of the next month, plough once. After the next good rain sow the seed broadcast, and plough the field across the former furrows. A *Colaga*-land sows 12 *Seers* of *Huruli*, and in a good crop produces twenty seeds.

One acre sows 1,110684 peck, and produces 5,55684 bushels.

The quantity of all the other crops is inconsiderable.

Cotton. In a particular quality of soil, of which the quantity is small, cotton and *Mobu Navony* are cultivated. It is a black clay, which contains small masses of lime-stone. On this ground *Ragy* will not grow; but on *Ragy* soil cotton will grow, although not well. In the course of a month, any time in the first quarter of the year, which commences about the vernal equinox, plough five times. Then, after a good rain, harrow with the rake drawn by oxen, and sow with the drill, the seed of the *Navony* being put in the *Curigy*, and that of the cotton in the *Sudiky* (see Figure 26); then harrow again. It gets neither weeding nor manure. In four months the *Navony* is reaped, and the space on which it grew is ploughed. The cotton, in 15 days afterwards, begins to give ripe capsules; and till *Vaisákha*, or about the middle of the following April, it continues to produce a good quantity. If the farmer be able, he then ploughs up the whole field, and sows it as at first; but if he be poor, or lazy, he weeds the field by ploughing between the rows of cotton, and cuts it down close by the ground. It shoots up fresh branches, and in the second year gives a poor crop. A *Colaga*-land requires 4 *Seers* of cotton seed, and nine of that of *Navony*, and produces 96 fold of the *Navony*. The farmers can give no account of the quantity of cotton wool that any extent of land produces; for it is spun

by their women as gathered. The produce of the *Navony* is equal to about 20 bushels on an acre. This land is sometimes let by a division of crops, and sometimes for a fixed rent. It is more valuable than the land used for *Ragy*.

Harica.

Harica (see the account of agriculture at Seringapatam) is sown in low soft places, where in the rainy season water is found near the surface. The soil is of different kinds. In *Vaisákha, Jyaishtha,* and *Ashádha,* or three months following the middle of April, plough three times in the course of thirty days. After the next rain that happens, harrow with the rake drawn by oxen, sow broad-cast, and then repeat the harrowing. It ripens in six months without farther trouble. As fodder for cattle, the straw is reckoned equal to that of *Ragy,* or of *Huruli.* The seed for a *Colaga*-land is 24 *Seers*; the produce in a good crop is 10 *Colagas,* or 40 fold.

One acre sows 2,221368 pecks, and produces 22,213684 bushels.

Huts'-Ellu.

Hut's-Ellu is sown in places called *Jauvugu,* or sticking-land, which are situated at the bottom of rocks; from whence in the rainy season the water filters, and renders the soil very moist. In such places nothing else will thrive. When the rain has set in so late as to prevent the cultivation of any thing else, the *Huts'-Ellu* is sown also on any land, especially on *Ragy* fields. On such soils, however, the *Huts'-Ellu* does not succeed. In *Bhadrapada,* or *Aswaja,* (from about the middle of August till about that of October,) plough once, sow broad-cast, and plough in the seed, which ripens in four months. On a *Colaga*-land sow six *Seers,* which in a good crop will produce four *Colagas.*

An acre sows 0.565342 peck, and produces 8,8854 bushels.

Sesamum.

Here are cultivated two kinds of *Sesamum,* the *Caru* or *Wull'-Ellu,* and the *Gur'-Ellu,* which, on comparing the seeds, the people here say, is the *Wull'-Ellu* of *Seringapatam.* The last, I have already observed, forms part of the watered crops; the *Car'-Ellu* is cultivated on dry-field. The soil best fitted for it is *Daray,* or stony land, which answers also for *Shamay,* and *Huruli.* The ground, on

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which *Car'-Ellu* has been cultivated, will answer for the last-mentioned grain; but not so well as that which has been uncultivated. After it, even without dung, *Shamay* thrives well. The same ground will every year produce a good crop of this *Ellu.* If a crop of *Ellu* is taken one year, and a crop of *Shamay* the next, and so on successively, the crops of *Ellu* will be poor, but those of *Shamay* will be good. After the first rain that happens in *Vaiśákha,* which begins about the middle of April, plough three times. With the next rain sow broad-cast, and plough in the seed. In between four and five months, it ripens without farther trouble. On a *Wocula*-land the seed is six *Seers,* and the produce in a good crop is 5 *Colagas,* or eighty fold.

An acre sows 0,555342 peck, and produces 11,106842 bushels.

Harulu, or *Ricinus.*

Harulu is cultivated on a particular soil, which is reserved for the purpose, and consists of ash-coured clay mixed with sand. There are here in common use three kinds of *Harulu;* the *Phola,* or field; and the *Doda,* and *Chittu,* which are cultivated in gardens. A red kind is also to be seen in gardens, where it is raised as an ornament. The *Chitt'-Harulu* produces the best oil. Next to it is the *Phola* that is cultivated in the fields. In the course of a few days, any time in the three months following the vernal equinox, plough three times. With the next rain that happens, plough again, and at the same time drop the seeds in one furrow at the distance of one cubit and a half, and then cover them with the next furrow. A month afterwards hoe with the *Cuntay,* so as to kill the weeds, and to throw the earth in ridges toward the roots of the plant. It ripens without farther trouble. At the time the *Harulu* is planted, seeds of the pulses called *Avaray* and *Tovaray* are commonly scattered through the field. In four months after this, the *Harulu* begins to produce ripe fruit, and for three months continues in full crop. For two months more it produces small quantities. A *Wocula*-land sows 9 *Seers* of seed, and in a good crop produces 4 *Colagas.*

An acre sows 0,833 peck, and produces 8,8854 bushels.

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Barugu.

The grain called *Barugu* is of two kinds; *Barugu* and *Calu-Barugu.* The former is sown in both watered-land, and dry-field; the latter is sown only in dry-field. The former is sown on any kind of soil, but injures the following crop of *Ragy* or of *Shamay.* It is sown either on land where something else has been sown, and owing to a want of rain, or other accident, has failed; or on land that is fit for nothing else. In this case, plough three times in the month immediately following the vernal equinox. After the next rain, harrow with the rake drawn by oxen, sow broad-cast, and harrow again. When the field has been previously sown with something that has failed, plough twice in *Bhádrapada,* the month preceding the autumnal equinox, and then sow in the same manner. In between 2½ and 3 months it ripens. The seed on a *Wocula*-land is 24 *Seers.* The produce is 5 *Colagas,* or twenty fold.

An acre sows 2,221368 pecks, and produces 11,106842 bushels.

Calu Barugu.

The *Calu Barugu* is cultivated on rich *Ragy* land, which it does not materially injure. The process is the same as for the other kind, but it requires 5 months to ripen; and in a good year, when there is much rain, produces 1 *Candaca,* or eighty fold. It is a very cheap food for the poor, and the straw is better than that of *Shamay.*

An acre sows 2,2219 pecks, and produces 44,42736 bushels.

Navony, or *Panicum Italicum.*

Navony is of three kinds; *Bily,* which is cultivated on watered-land; *Kempa,* which is cultivated in Palm gardens; and *Mobu,* which is cultivated in dry-field. When it is sown along with cotton, I have already mentioned how it is managed; but it is also cultivated separately. It grows on both *Ragy* and *Jola* ground, and does not injure the succeeding crop of either. In the course of twenty or thirty days, any time in *Jyaishtha, Ashádha,* or *Srávana,* the 3d, 4th, and 5th months after the vernal equinox, plough four times. If dung can be obtained, it ought to be put on after the first ploughing. With the next rain, harrow with the rake drawn by oxen, sow broad-cast, and harrow again. The straw is reckoned next in quality to that of *Ragy;* but the grain, in the opinion of

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the natives, is inferior. A *Wocula-land* sows 9 *Seers*, and in a good crop produces 10 *Colagas*.

An acre sows, 0,833 peck, and produces 22,213684 bushels.

Wullay Suja.

Wullay Suja is the same as what at *Seringapatam* is called *Chica Cambu*. There is here another kind called *Hulu Suja*; but not having seen it growing, I cannot say whether it is a different species, or merely a variety of the *Holcus spicatus*. The *Wullay Suja* is cultivated on *Ragy* ground, and does not injure the succeeding crop of that grain. In the course of fifteen or twenty days, any time in *Vaisákha*, or *Jyaishtha*, the 2d, and 3d months after the vernal equinox, plough four times. Then after a good rain harrow with the rake drawn by oxen, and either sow broad-cast, or with the drill. In the last case, rows of *Avaray, Tovary*, or *Huruli*, are put in with the *Sudiky*, and the field is again harrowed. At the end of a month hoe with the *Cuntay*, and in the course of fifteen days repeat this twice. A *Wocula* of land sows 8 *Seers* of *Suja*, and 8 *Seers* of the pulses, and produces 10 *Colagas* of the former, and two of the latter.

	Peck.		Bushels.
An acre sows of *Suja*	0,7405	- and produces -	22,213684
of pulse	0,7405	- - - - - -	4,4427
Total	1,481		26,655384

Jola that is raised in dry-field.

The *Jola* that is cultivated on dry-field is of three kinds; *Agara, Kempa*, and *Hessaru*. I have had no opportunity of ascertaining their botanical affinity or difference. They are all, probably, mere varieties of the *Holcus sorghum*. The best soil for them is a black clay; and the next, the same mixed with sand. For *Ragy* these soils are of a poor quality; but, on the same dry-field, *Jola* and *Ragy* may be alternately cultivated, without injuring either. In *Vaisákha*, or the 2d month after the vernal equinox, plough four times. After the next rain sow the seed. It is sown either broad-cast, or by dropping it in the furrow after the plough. Smooth

the field by drawing a plank over it. It requires neither weeding nor manure. For fodder its straw is inferior to that of *Ragy*, but superior to that of rice. The seed for a *Wocula*-land is 7½ *Seers*. *Agara Jola* ripens in 4½ months, and in a good crop produces 12 *Colagas*; *Kempa Jola* ripens in 4 months, and produces 10 *Colagas*; the *Hessaru* ripens in the same time, and produces 8 *Colagas*.

	Peck.			Bushels.
An acre sows -	0,69418	*Agara J.* produces	- -	26,
		Kempa J.	- - -	22,213684
		Hessaru J.	- - -	17,770909

Udu.

The pulse called *Udu* here is the same with that at *Seringapatam*. It grows best on a black soil, which it does not injure for the succeeding crop of *Jola*. Plough twice in *Ashádha* or *Srávana*, the 4th and 5th months after the vernal equinox. After the next rain sow broad-cast, and plough in the seed. In 3½ months it ripens without farther trouble. The straw is only useful as fodder for camels. A *Colaga*-land sows twelve *Seers*, and in a good crop produces 24 fold.

An acre sows 1,11068 peck and produces 6,66133 bushels.

Hessaru.

The pulse called *Hessaru* is cultivated exactly in the same manner as *Udu*. Cattle can eat the straw. The husks, or dry pods, of *Hessaru*, *Udu*, and *Avaray*, are reckoned a fodder superior to even *Ragy* straw. In three months the *Hessaru* ripens. A *Wocula*-land in a good crop produces 4 *Colagas*.

An acre sows 1,11068 peck, and produces 8,8854 bushels.

Kitchen gardens.

In the *Tarkari*, or kitchen gardens, here, the principal articles are maize, transplanted *Ragy*, wheat, turmeric, capsicum, onions, garlic, and hemp, which is only used to intoxicate. Large gardens are watered with the *Capily*, and small ones with the single *Yatam*. The water in the wells is about 21 feet below the surface. A garden of a *Colaga*-land requires four men and four women to work it. The men, however, occasionally perform other work, and the women spin.

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The *betel-nut* or *Areca* gardens were here of some importance; but during the terror occasioned by the last Marattah invasion, many of them, from want of care, perished. Several are now re-planting. The situation that is reckoned most favourable for them is a black soil, which contains calcareous nodules. It differs from that in which cotton is raised, by having the lime-stone a cubit or two deep; whereas the cotton requires it to be at the surface. For *Areca* gardens the people here do not approve of that ground which contains water near the surface; for they say, that the produce of such soils is of little value. The gardens at this place are watered from reservoirs, from canals, and from wells by means of the *Capily*. The trees are remarkably fine.

To make a new garden, in *Srávana*, the 5th month after the vernal equinox, plough four times. Then with the hoe, called *Yella Kudali*, form the garden into beds six cubits wide. Between every two beds is a raised channel, for bringing a supply of water; and in the center of each bed is a deep channel, to carry off what is superfluous. The beds are divided into plots ten or twelve cubits long. Then plant the whole with shoots of the *betel-leaf* vine *(Piper Betle)*, and for its support sow the seeds of the *Haluana*, *Agashay*, and *Nugay*. Then surround the whole with a thick hedge, and once a day for three months water with a pot. Whenever weeds grow, they must be removed; and at each time the *betel-vines* must get some dung. Between every two rows of the vines, in the 4th month, is put a row of young plantain trees *(Musa)*. Once in four days afterwards the water is given from the reservoir or well. In six months the vines must be tied up to the young trees. At the same time, for every *Wocula*-land, 3,000 nuts of the *Areca* must be planted near the roots of the vines. When they are three years old, a thousand of them will be fit for use, and 800 are required to pland a *Wocula*-land, or about an acre and a half. They are planted distant in every direction from each other 5 cubits. At the same time plant on the inside of the hedge some rows of coco-nut palms,

and orange, lime, *Mango*, or *Jack* trees. The eight hundred *Areca* palms, at five cubits distance, would only occupy about an acre; but a considerable space is taken up by a walk, and by the rows of fruit trees between them and the hedge. In nine years, from the first formation of the garden, the *betel-vines*, and most of the trees that supported them, are removed. A few of the *Agashay*, and all the *plantains*, are allowed to remain. In the twelfth year the *Areca* palms begin to produce fruit. The remaining *Agashay (Æschynomone grandiflora)* trees, and one half of the *plantains*, are then removed. After this, the garden requires water only once in the eight days, when there is no rain; and the whole is dug over, and formed like rice-ground into proper squares, and channels for distributing the water. One year it is manured with dung; in the second with the leaves of the *Hoingay*, and *Coghi (Robinia mitis*, and *Galega purpurea)*, and in the third year with mud from the bottom of a reservoir. So long as the garden lasts, this succession of manures should, if possible, be continued; and when the palms attain their full growth, which is in the 14th year of the garden, the plantain trees are entirely removed. For 30 years, from its arriving at maturity, the palm continues vigorous, and for 14 years more gradually declines; during which time a new garden ought to be formed, and then the old trees should be cut, and the ground cultivated with grain, till the second formed garden again begins to decay. In place of those that die, some poor farmers plant new trees, and thus constantly keep up a garden on the same spot; but here this is looked upon as a bad practice. The crop season lasts two months before, and one after, the autumnal equinox. The nut, after being peeled, is cut into seven or eight pieces, and put up in a heap. Then take one *Seer* of the nut, one *Seer* of *Cut*, or *Terra Japonica*, and a hundred leaves of the *Piper Betle*, beat them together repeatedly with some water, and strain the juice thus obtained into a pot. Take 20 *Seers* of the bark of the *Cari Jali (Mimosa indica* E. M.), and boil it during a whole night in a large pot, with

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forty *Seers* of water. With this decoction mix the juice expressed from the former materials, and boil again. While it is boiling, put in the *Areca* nut, after it has been cut, until the pot be full. Immediately after, take it out with a ladle, and put in more, till the whole is boiled. In order to be dried, it must be three days exposed on mats to the sun, and is then fit for sale. It is bought up chiefly by the merchants of the place, and by those of *Gubi*. To enable the farmer to pay his rent, which is a certain fixed sum of money, it is customary for the merchant to make advances. Forty *Maunds* of dried nut is here reckoned the common produce of a *Colaga*-land, which is about six hundred weight and one third an acre, or for each tree about 1⅓ lb. At *Chandra-giri*, near this place, the produce is one half more, or 60 *Maunds*. The former custom was for government to give every person who undertook to make a plantation of palms an advance of 100 *Fanams* (3*l.* 7*s.* 1*d.*) and of 10 *Colagas* (about 33⅓ bushels) of grain, for every *Colaga* (1½ acre) of land that he engaged to plant. The first year's rent was 30 *Fanams;* the second year's rent 40 *Fanams;* from the third until the twelfth year 60 *Fanams;* the thirteenth year 100 *Fanams;* the fourteenth and subsequent years 166 *Fanams*. These rents, reduced to the acre at the *Seringapatam* exchange, and small fractions being omitted, will be:

1st year - - - -	£.0	13	5
2d year - - - -	0	17	11
3d—12th years - - -	1	6	10
13th year - - - -	2	4	7
Full rent - - - -	3	14	3

The full rent at *Chandra-giri* is 250 *Fanams*, or about 5*l.* 10*s.* an acre. This high rent is, however, greatly less than one half of the produce.

Yams.

Among the *betel-leaf* gardens in this neighbourhood a few *Yams* *(Dioscorea)* are planted; and this is the only place above the *Ghats* where I found that valuable root cultivated. In the *betel-nut*

gardens they would succeed, but it is imagined that they would injure the crop.

Navony.

The only other thing cultivated in these palm gardens is *Kempa Navony*, which may be sown every year in the fifth month after the autumnal equinox. The ground in the middle of the squares is dug up, and in a garden of a *Colaga* of land 4½ *Seers* of the seed are sown. The ground is then smoothed with the hand and dunged. The produce is only 96 *Seers*, and the principal intention of sowing it is to prevent the squirrels from hurting the nuts, by giving them a more favourite food. These little animals, though beautiful, are a very destructive vermin, and would be destroyed by the inhabitants of this place, were it practicable. In many other places their destruction would be considered as sinful.

Expence of a palm-garden.

In a garden here, watered by the *Capily*, and said to be a *Colaga*-land, or about an acre and a half, the water in the wells being about 20 feet below the surface, I found that there were constantly employed three men, two oxen, and a *buffalo*. This was said to be the rate of labour common in the country. At crop season, and when the whole garden was hoed, extraordinary labourers were hired.

Capily, a machine for raising water.

A *Capily* which I examined, the water being 19 feet 8 inches below the surface, emptied its bucket, on an average, once every 36 seconds; and at each time brought up $32\frac{85}{100}$ ale gallons of water. One man and two oxen could work it for eight hours in the day, and thus draw up daily 26,280 gallons. Double the quantity may be had, from the same well, by a double set of cattle. Stops, however, frequently intervene, that very considerably diminish the quantity actually raised.

Tenures.

The rent here upon dry-field is not fixed; but, before ploughing commences, a bargain is annually made between the acting *Gauda*, or renter, and the farmer. Dry soil fit for *Ragy*, which implies its being of a good quality, lets from 10 to 30 *Fanams* for a *Colaga* sowing, or about 6 acres; or for from 13*d.* to 3*s.* 4*d.* the acre. If the same soil admits of being watered, so as to raise transplanted

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Ragy, it pays from 20 to 25 *Fanams* for a *Colaga*-land, or from 9 to 11 shillings an acre. The same soil, in situations answering for kitchen gardens, pays from 40 to 70 *Fanams* a *Colaga*, or nearly from 18*s.* to 31*s.* for an acre and a half. None of the rents, however, are fixed, either to the person who rents the village from the government, or to the cultivators, except those on rice lands and *betel-nut* gardens. The cultivator is nevertheless considered as having a claim to certain lands; and, even if he have been absent for a number of years, he may return, and reclaim the lands formerly occupied by his family; and has a right to them, on paying the same rent which others offer. If a new man, however, has made any improvements, such as digging a well, or planting a garden, he must be paid for his trouble before the former occupant can resume his possession.

Gaudas and renters.

To each village there is an hereditary *Gauda*, who at any rate gets a share of the wet crops on their division, and performs the village sacrifices, which are here made to the *Cumba* (pillar), the image of the village god. The renter performs the other duties; and he agrees to give so much to the government, and makes as much as he can, consistently with the rules of the village. Each year the *Amildar* lets the village to the highest bidder. The renter finds security for his personal appearance when called upon, but not for the payment of his rent.

Manner of dividing the wet crops.

In dividing a heap of rice, between the cultivator and renter, the following is the custom of this place. The heaps contain, upwards, from 20 *Colagas*, or 1920 *Seers*.

Seers 6	are first taken for the gods, and are divided among the *Pujáris* of the village temples, and the *Panchánga*.
5	are divided between two *Jangamas*, and one *Dásëri*.
$1\frac{1}{2}$	is given to the *Panchánga*.
Seers $12\frac{1}{2}$	

The heap is then measured, and divided by the following rule:

If the field has been entirely watered by a reservoir, the cultivator gets one half. If he has used the *Capily* entirely, he gets two-thirds. If the water has come from a canal, he gets five-ninths. If the water in the tank lasts for 3 months, and afterwards the cultivator must use the *Capily*, he gets three-fifths. CHAPTER VI. July 25, &c.

A portion is left at the bottom; from which, for every *Candaca* that has been in the heap, are taken,

Seers 144	to be divided equally among the *Gauda*, or hereditary chief, *Shanaboga*, or accomptant, iron-smith, *Talliari*, and *Toty*, or watchmen, washerman, barber, carpenter, and pot-maker.
26	for the *Nirgunty*, or conductor of water.
96	for the *Madiga*, or tanner who makes the *Capily*.
12	for the *Shanaboga*, or accomptant.
12	for the *Gauda*, or hereditary chief.
66	a scramble now takes place, and each of the above mentioned persons, the mendicants excepted, takes about 6 *Seers*.
12½	given before.
366½	*Seers*, if the heap contained 1920, are thus given away.

The proportion on a larger heap will be some trifle less. If any remain, it is divided between the cultivator and renter, by the same rule as before. The *Madiga*, or tanner, gets also the sweepings. Such a manner of division could only be continued from its offering great opportunities to defraud government.

Work performed by one plough; stock.

It is here estimated, that a plough will cultivate as much dry-field as would sow 96 *Seers* of *Ragy*, or about 6 acres; or as much watered land as would sow three *Colagas* of *Paddy*, or about 4½ acres. If both be mixed, it would cultivate about 4½ acres of dry-field, and 3¾ of watered. A plough requires at least one man and two oxen; but if the farm be properly stocked, there ought to be three for each plough. Many farmers in every part of the country

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are so poor, that they cannot stock a farm of one plough; and for this purpose two, or even three, are sometimes obliged to unite their capitals. A man who keeps three or four ploughs is a wealthy person. Some first-rate farmers possess as far as ten; yet the most favourable situation, of a proper mixture of watered land and dry-field, does not make his farm more than eighty-two acres and a half. A farm of this kind, fully stocked, constantly requires ten ploughmen, two other men, and ten women servants, besides some additional hands at seed-time and harvest. A man's wages here are 6 *Fanams*, or about 4*s*. a month; a woman's 5 *Fanams*, or 3*s*. 4*d*. The labouring servants, or *Batigaru*, live in their own houses. The old women of their families live at home, cook, spin, take care of the children, and do all domestic labour; the men, and their young wives, hire themselves out to the wealthy farmers, on the same conditions of service as at *Seringapatam*. Pregnancy occasions scarcely any interruption in the labour of the women, who are very hardy.

Servants wages.

Frequent scarcity.

Although almost every year the scarcity of rain, and the partial nature of that which comes, occasions in some part of the country above the *Ghats* a greater or less scarcity of grain; yet in the time of peace, famine seldom comes to such a height, that many die of absolute want. From those parts of the country that have been most favoured with rain, the superfluous corn is transported to the parts where the crop has failed; and although it is high priced, the poor are able to get as much as prevents them from immediately dying; although the scantiness of their aliment, no doubt, frequently induces disorders that terminate in death. It is said, that one fourth of the grain which, in times of plenty, the people usually consume, is sufficient to keep them alive, and enable them to work for their subsistence. It is when war is joined to scarcity, and interrupts the transportation of grain, that famine produces all its horrors. These were never so severely felt here, as during the invasion of Lord Cornwallis; when, the country being attacked on all sides, and penetrated in every direction by hostile armies, or

by defending ones little less destructive, one half at least of the inhabitants perished of absolute want, and repaid dearly for the miseries which they had formerly inflicted on the wretched people of the lower *Carnatic.* I do not mean, by this, to reflect on the noble leader of the British army: the people, every where that it came, seem sensible that he avoided, as much as was practicable, doing them any injury.

GyddaCavila, or keeper of forests.

In every *Taluc,* or district, where there are forests, there is a *Gydda Cavila,* who annually pays to the government a certain sum, and has the exclusive privilege of collecting honey, wax, and lac. On all such as cut timber for building their houses, he also levies a duty; and all the trees, except sandal-wood, are in fact his property. The government ought to pay him for all the trees which it requires; but this is generally omitted, an Indian government rarely paying for any thing which it can get by force. The keeper of the forest exacts also small duties on those who, without being privileged, feed their goats and cattle in the woods; on the women, who collect the leaves, which are used as platters by all ranks in this country; and on those who collect firewood, and grass for thatch.

Sandal wood.

In this district there are many sandal wood trees; but of so bad a quality, that they are never cut.

Lac.

From the hills in this vicinity, about a hundred *Maunds* of lac (almost 24 hundred weight) are annually procured; and there is more in several of the neighbouring districts.

Bees.

The bees here are of four kinds: I. That from which most of the honey and wax is procured, is called *Hegenu.* This is a large bee, which builds under projections of the rocks, or in caverns. A large nest gives 8 *Seers, Seringapatam* weight, of honey=$4\frac{4}{100}$ lb., and 3 *Seers* of wax $1\frac{12}{100}$ lb. A small hive gives about one third of this quantity. The honey is gathered twice a year, in *Ashădha* and *Mágha,* or in the month following the summer solstice, and the second after that of winter. Some people of the *Baydaru* cast make

CHAPTER VI. July 25, &c. the collecting of honey and wax a profession, and it is one attended with much danger. Having discovered a hive, some of them kindle a fire under the rock, and throw on it the leaves of the *Cassia fistula*, and of the *Puleseri*, which emit a smoke so acrid, that nothing living can endure it. The bees are forced to retire; and some others of the *Baydas*, so soon as the smoke subsides, lower down by a rope one of their companions, who with a pole knocks off the nest, and is immediately drawn up again; for, if he made any delay, the bees would return, and their stinging is so violent, that it endangers life. In order to fortify him against the sharp points of rocks, and against injury from the rope, which passes round his chest, the adventurous *Bayda* is secured, before and behind, by several folds of leather. II. The bee, that produces the next greatest quantity of honey is called the *Cadi*, or *Chittu Jainu;* that is, stick, or small honey. This bee is very small, and builds, around the branch of a tree, a comb of an oblong shape, and sharpened at both ends. It is found at all seasons, but is in the greatest perfection at the same time with the other. The honey is of the finest quality; but the whole comb seldom weighs more than two *Seers*, or $1\frac{2}{10}$ lb. This bee does not sting, and is readily driven away by a twig switched round the comb. III. The *Tuduvay* is a bee of which the honey is of an excellent quality, but rarely procured; for it generally builds deep in the crevices of rocks, where it is totally inaccessible. Sometimes, however, it is found in hollow trees, and one hive will give from 20 to 25 *Seers* of honey, or about 12 or 15 pounds; but the quantity of wax is in proportion small. This is a large bee; but it very seldom stings those who plunder its hive. IV. The *Togriga* is a very small bee, that seldom stings. It takes possession of the deserted nests of the white ants *(Termes)*, which in this country are very numerous in the wastes of red soil, such as is usually cultivated for *Ragy*. Of this stiff earth, the white ants raise hills resembling the stump of a tree, which are from four to six feet high, very hard, and able long to resist the heaviest rain. These, when deserted,

most commonly become the lurking places of snakes; but sometimes give shelter to the *Togriga* bee. Its nest is therefore easily accessible; but it is very small, and contains only about a *Seer* of honey, and half a *Seer* of wax. CHAPTER VI. July 25, &c.

Wild-date, or *Elate sylvestris.*

From the seed dropped by birds, or by accident, great numbers of the palm called *Ejalu (Elate sylvestris)* grow here wild. It will thrive on any good soil that does not contain lime, and grows indeed on the poorest lands; but in these it affords hardly any juice. To rear it requires no trouble, as the prickly nature of its leaves sufficiently deters cattle. The English use only one name for the juices of all the different palm-trees in India, and call them all *Toddy*, which seems to be a corruption of *Tári*, the Mussulman name for the juice of the *Palmira*, or *Borassus flabelliformis.* The natives have distinct names for each kind of juice; and, in fact, there seem to be considerable differences in their qualities. That of the *Elate* is by the Mussulmans called *Sindy;* in the *Karnata* language *Henda;* and in the *Telinga* and *Tamul* dialects *Callu.* The juice of the *Borassus,* although the tree grows well enough, is here never extracted, and the natives deny their extracting *Sindy.* The *Sindy* is never drunk by the natives till it has fermented, when it becomes exceedingly intoxicating, and in many villages great quantities are consumed. In this place it is never distilled; though, no doubt, it would afford a spirit that, by rectification and age, might be made palatable. Much of the *Sindy,* when fresh, is boiled down into *Jagory,* which sells for about $\frac{1}{3}$ of the price of that made from sugar-cane, and is chiefly used for distillation. The process here is exactly the same as that described at *Waluru.*

Manner of letting these palms.

All the *Ejalu* palms in this district are let to a person of the *Idiga* cast, who pays annually 120 *Pagodas,* or rather more than 40*l.* and lets them out again to the *Idigas* of the different villages. Each palm gives juice for three months in the year, and they will do this at any season; so that every man divides his trees into four

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portions, and thus has throughout the year a regular supply and employment.

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The juice of the *Elate sylvestris* is extracted by cutting a deep horizontal gash into the stem, at some distance below the leaves, and then cutting towards this from below in a sloping direction. The juice exsudes from the pores of the sloping surface, and is collected in a notch formed at its lower extremity; whence it is conveyed into a pot by one of the divisions of the leaf, which serves as a gutter. According to his alertness, one man can collect the juice of from 30 to 50 palms. 50 good trees, or 100 very bad ones, give 70 *Pucka Seers*, or about 17 ale gallons; and this may be boiled into 70 *Cucha Seers* of *Jagory*, or about 46½ lb. At sun-rise it is put in earthen pots, and boiled until noon. When the ebullition becomes so violent as to endanger the running over of the liquor, it is allayed by a small quantity of the emulsion of *Ricinus* seed. Small holes are then made in the ground, and in the bottom of each are placed two cuttings of any twining plant. Over these are laid some leaves, upon which the boiling *Jagory* is poured. When it has cooled, it is lifted out by means of the projecting ends of the twining plant. This palm is of very little other use. Mats are made of its leaves, and its stem is used in building the wretched huts of the poorer class of inhabitants.

Customs of the *Idigaru*, or *Inrawanlu*.

The *Idigas*, or *Idigaru*, are a cast of *Telinga* origin; and, though they have lost all tradition concerning the time when they settled in this country, they still retain their original language. In this they are called *Inrawanlu*. They can all eat in common, but keep up the purity of the breed by marrying only in certain families whose descent is known. Like the *Shanar* of *Madras*, their proper business is to extract the juice of palm trees, to make it into *Jagory*, and to distil it into spirituous liquors; but some few of them have become farmers. They wish to be called *Súdras*; but their claim to be of a pure descent is not acknowledged by the *Bráhmans*,

and they appear never to have been permitted to carry arms. The *Idigas* can read and write accompts. Although they eat animal food, they are prohibited from drinking even palm-wine. The men are allowed a plurality of wives, but can divorce them for no cause except adultery. Adultresses and widows cannot marry again; they may, however, become concubines, or *Cutigas.* All the descendants of these form an inferior kind of breed, called also *Cutigas,* with whom those who are descended from chaste mothers will not intermarry. The women sell the produce of their husband's labour, and manage household affairs; but never toil in the fields. Even after the age of puberty they continue to be marriageable, and are not permitted to bury themselves with their husband's bodies. They have no hereditary chiefs; but the renter, with a council as usual, settles all disputes, and punishes by fine all transgressions against the rules of cast. At their marriages, and at the monthly and annual ceremonies performed in commemoration of their deceased parents, the *Panchánga,* or astrologer, reads *Mantrams.* Their *Guru* is of the cast called *Satánana,* and is named *Cadry Singaia.* Near this place he has two houses, and his office being hereditary, he is a married man. He reads to them the history of the gods, written in the *Telinga* language; gives them holy water, admonishes them to wear the mark of *Vishnu* on their foreheads, and from each person he receives two *Fanams* as charity. His visits are about once in two years. With such a *Guru,* the principal object of their worship is of course *Vishnu*; but they also offer sacrifices to the *Saktis,* and to the *Virika,* or men who, on account of chastity, have been sainted. All other good men are supposed to become powerful spirits, but are not objects of worship. Bad men are punished in hell. This cast do not take the vow of *Dáséri.*

Customs of the *Curubas,* properly so called.

The *Curubaru* are an original cast of *Karnata,* and, wherever they are settled, retain its language. They are divided into two tribes, that have no communion, and which are called *Handy Curubaru,* and *Curubaru* proper. These last again are divided into a

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number of families; such as the *Any*, or elephant *Curubaru;* the *Hal*, or milk *Curubaru;* the *Colli*, or fire *C.;* the *Nelly C.;* the *Sámanta C.;* the *Coti C.;* the *Asil C.;* and the *Murhindina Curubaru.* These families are like the *Gótrams* of the *Bráhmans;* it being considered as incestuous for two persons of the same family to intermarry. The proper *Curubas* have hereditary chiefs, who are called *Gaudas*, whether they be head-men of villages or not, and possess the usual jurisdiction. Some of them can read accompts, but they have no book. The proper duty of the cast is that of shepherds, and of blanket weavers; and in general they have no other dress than a blanket. A few of those who are rich have betaken themselves to the luxury of wearing cotton cloth next their skin; for all casts and ranks in this country wear the blanket as an outer garment. The dress of the women resembles that of the females of the kingdom of *Ava.* The blanket is put behind the back, and the two upper corners, being brought forward under the arms, are crossed over the bosom, and secured by the one being tucked under the other. As their blanket is larger than the cloth used by the women of *Ava*, the dress is more decent. The *Curubaru* were, besides, *Candachara*, or militia; cultivators, as farmers, as servants, and as gardeners; *Attavana*, or the armed men who serve the *Amildars; Anchay*, or post-messengers, and porters. They are allowed to eat animal food, but in most places are not permitted to drink spirituous liquors. In other places this strictness is not required; and almost every where they intoxicate themselves with palm-wine. The women are very industrious, and perform every kind of work except digging and ploughing. Even after the age of puberty they continue marriageable, and can only be divorced for adultery. In this cast the custom of *Cutiga*, or concubinage, prevails; that is, all adulteresses who are turned away by their husbands, and have not gone astray with a strange man, and all girls and widows, to whom a life of celibacy is disagreeable, may live with any man of the cast who chooses to keep them. They are looked down upon

by their more virtuous sisters; but still are admitted into company, and are not out-casts. Among the *Curubaru*, the children of concubines do not form a separate cast, but are allowed to marry with those of a pure breed. By a connection with any man, except a *Curuba*, a woman becomes an entire out-cast. The men take several wives; and, if they be good workers, do not always divorce them for adultery; but, as they thus incur some disgrace, they must appease the anger of their kindred by giving them an entertainment, and the *Guru* generally interposes his authority to prevent a separation. The *Curubas* believe, that those men who die without having been married become *Vírikas*, to whose images, at a great annual feast, which is celebrated on purpose, offerings of red cloth, *Jagory*, rice, &c. are made. If this feast be omitted, the *Vírikas* become enraged, occasion sickness, kill the sheep, alarm the people by horrid dreams, and, when they walk out at night, strike them on the back. They are only to be appeased by the celebration of the proper feast. The peculiar god of the cast is *Bir'-uppa*, or father *Biray*, one of the names of *Siva;* and the image is in shape of the *Linga;* but no other person prays to *Siva* under this name, nor offers sacrifices to that god, which is the mode by which the *Curubas* worship *Bir'-uppa.* The priests who officiate in the temples of this deity are *Curubas.* Their office is hereditary, and they do not intermarry with the daughters of laymen. In some districts, the *Curubas* worship another god, peculiar, I believe, to themselves. He is called *Battay Dévaru*, and is a destructive spirit. They offer sacrifices to him in woods, by the sides of rivulets, or ponds. The carcases of the animals killed before the image are given to the barber and washerman, who eat them. Beside these, the *Curubaru* offer sacrifices to the *Saktis*, and pray to every object of superstition (except *Dharma Rája*) that comes in their way. They are considered as too impure to be allowed to wear the *Linga*, as their *Guru* does. This person is called a *Wodear*, or *Jangama;* but he is married, and his office is hereditary. His title is *Rávana Siddhéswara*, and he originally

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lived at *Sarur*, which is near *Kalyána pattana*. At his visits he bestows consecrated ashes, and receives charity. He has a fixed due on marriages, and sends his agents to collect it. At some of their ceremonies the *Panchánga* attends, and acts as *Puróhita*.

Badavana-hully.

30th *July*.—I went four cosses to *Badavana-hully*, or the *poor man's village*; which is fortified with a mud-wall and a strong hedge, and contains about twenty houses of cultivators. In the former war it fell into the hands of *Purseram Bhow's* army; and, although the inhabitants have lived ever since in perfect security, it has not yet recovered one half of its former population. The disease among the cattle last year did not extend toward this quarter farther than *Chica Bala-pura*; but this year it has killed one half of the stock.

Appearance of the country.

The country through which I came to-day consists of vallies interspersed with detached barren hills. In these vallies there has been formerly a good deal of cultivation; at present however they are not half peopled. A great part of the country is covered with the wild date palm, or *Elate sylvestris*, of which no care is taken. Even on bad soils it seems to be so thriving, that I have no doubt but that even there it is sufficiently productive of juice.

July 31. Appearance of the country.

31st *July*.—I went four cosses to *Sira*. The greater part of the country, through which I passed to-day, is covered with trees, which are rather higher than is usual in the wastes of this country. Among them were many wild date palms. The *Sultan*, as I have already mentioned, with a view of enforcing the doctrine of his religion, which forbids the use of intoxicating liquors, gave orders that all these should be cut. Like most of his other regulations, this seems to have been very ill obeyed; for in the central parts of his dominions no tree seems to be in such abundance. On the way, I passed two ruinous villages, and one still inhabited; but by far the greater number of the fields were uncultivated, and by far the greater part of the country shows no traces of its ever having been reclaimed, although it seems in very few places to be too steep or too barren for the plough.

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Aug. 1—6. State of the country near *Sira*.

From the 1st to the 6th of *August*, I remained at *Sira*, investigating the state of that neighbourhood; as being the principal place in the central division of the *Rájá's* dominions north from the *Cavery*.

Sira, for a short time, was the seat of a government which ruled a considerable extent of country, and seems to have been at its greatest prosperity under the government of *Diláwur Khan*, immediately before it was conquered by *Hyder*. It is said, that it then contained 50,000 houses, of which Mussulmans occupied a large proportion. By this change of masters *Sira* suffered greatly; not owing to any oppression from *Hyder*, but from its being deprived of the expenditure attending the court of a *Mogul Nabob*. It was also much reduced by the *Marattah* invasions, which had nearly proved fatal to the rising power of its new master; and its ruin was accomplished by his son *Tippoo*, who removed twelve thousand families, to form near his capital the new town of *Shahar Ganjam*. About three hundred houses remained, when the *Marattah* army, under *Purseram Bhow* and *Hurry Punt*, took up their head quarters in the fort, which is well built of stone, and of a good size. These invaders did no harm to the town, but destroyed most of the villages in the neighbourhood, and many of these still continue in ruins. The town itself, although the seat of an *Asoph*, or Mussulman lord lieutenant, continued to languish till it came under the English protection. It is little more than a year since the army under General Harris encamped here on its route to *Chatrakal;* and since that time two thousand houses have been built; many of its former inhabitants, whom the *Sultan* had forced to *Seringapatam*, have returned to their native abode; and others are coming in daily from the country that has been ceded to the *Nizam*. The only building in the place worth notice is the monument of a Mussulman officer, who commanded here during the *Mogul* government; but it is abundantly supplied with tombs of men who by the *Muhammadans* are reputed saints, and near which the people of that

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faith are anxious to be buried, as they consider the ground holy. The only considerable temple was pulled down by *Bahadur Khan*, the last *Asoph* of the place; who was building a monument for his wife with the materials, when the arrival of the British army put a stop to such proceedings.

Near *Sira* the quantity of watered ground is greater than that of dry-field; but unfortunately it is situated in a very dry climate; so that, during the last fourteen years, the tanks have been filled only five times so as to give a full crop. In the other nine years, by means of the little rain that fell, and by the use of the machine called *Capily*, the inhabitants have been able to raise a quarter of the full crop; and one third of the whole grain consumed in the country has been brought from other places, especially from the banks of the *Cavery*. Scarcity is therefore a common evil; and in the memory of young men, famine has several times spread all her terrors over this unfortunate place. Although in the immediate neighbourhood of a powerful garrison, all the villages are strongly fortified. On asking the reason of such precautions from a very intelligent chief of a village, from whom I took most of my information, he told me, that it was chiefly on account of robbers, who in the time of famine were very numerous. During this calamity the inhabitants of one village wish, by plundering their neighbours, to support life; and of course, expecting the same treatment, each is shut up, and guarded from the nocturnal attacks of its neighbours, as if these were its most inveterate enemies. In war also the people have found these fortifications very useful. In their defence they employ few weapons except stones, which both men and women throw with great dexterity, and equal boldness. They do not attempt to defend themselves against any thing that wears the face of a regular body of men; but they stone, with the greatest intrepidity, the irregular cavalry that attend all native armies, and who are seldom provided with fire-arms. On a visit which I made to the chief above mentioned, he boasted, that with ten men he had

Villages strongly fortified.

beaten off 200 of the *Marattah* cavalry, of whom several men and horses were killed.

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Watered-land.

In favourable years the greatest part of the watered-land is cultivated with rice. In dry seasons a little only of this grain is raised, and the cultivation consists chiefly of transplanted *Ragy*, wheat, *Jola*, and *Navony*, which require less water. Sugar-cane is always cultivated. Gardens occupy the remainder of the watered-land. The kitchen gardens, in the whole district, amount to only four or five *Colaga* lands; that is, to about six acres. The palm gardens now amount to ten *Candaca* lands, about 300 acres; and before *Purseram Bhow's* invasion extended to three times that size. In *Sira*, and the districts south from it, are many very valuable plantations of this kind, producing the *betel-nut* of the kind called *Wallagram;* but, until I get more into the heart of that part of the country, I shall defer giving an account of them.

Cultivation of watered-land.

In the accompanying table, as at *Madhu-giri*, I have given some of the particulars of the cultivation of watered-grounds, and shall afterwards proceed to detail the remainder.

Grains cultivated on watered-grounds at *Sira*.	Months required to ripen.	Quality.	Seed.		Produce					
					In a good crop.			In an indifferent crop.		
			On a *Colaga-land*.	On an Acre.	On a *Colaga-land*.	Increase folds.	On an Acre.	On a *Colaga-land*.	Increase folds.	On an Acre.
			Seers.	Pecks.	*Seers.*		W. Bushels.	*Seers.*		Bushels.
Rice { *Caimbutti* - - - - - - -	5	Middle	88	8,145	1920	22	44,427	1248	$14\frac{2}{11}$	28,877333
Rice { *Dodacassery* - - - - - -	$4\frac{1}{2}$	Large -	96	8,8854	1920	20	44,427	1248	13	28,877333
Rice { *Chaningy* - - - - - - -	4	Middle	88	8,145	1536	$17\frac{5}{11}$	35,541777	864	$9\frac{2}{11}$	19,99
Rice { *Gayruda Chaningy* - - - - -	4	Ditto -	88	8,145	1536	$17\frac{5}{11}$	35,541777	864	$9\frac{2}{11}$	19,99
Rice { *Tripathi* - - - - - - -	4	Small -	80	7,405	960	12	22,213684	672	$8\frac{4}{10}$	15,55
Rice { *Cari Nelly* - - - - - - -	6	Ditto -	80	7,405	1152	$14\frac{2}{5}$	26,65625	768	$9\frac{3}{5}$	17,770909
Rice { *Bily Nelly* - - - - - - -	5	Middling	88	8,145	1920	22	44,427	1344	$15\frac{3}{11}$	31,1
Rice { *Put'-Rája* - - - - - - -	5	Small -	80	7,405	1152	$14\frac{2}{5}$	26,65625	768	$9\frac{3}{5}$	17,770909
Rice { *Sucadass* - - - - - - -	$5\frac{1}{2}$	Ditto -	80	7,405	768	$9\frac{3}{5}$	17,770909	576	$7\frac{2}{10}$	13,328125
Doda Ragy in place of the *Kartika* crop - -	$6\frac{1}{2}$	- - -	12	1,110684	960	80	22,213684			
Tripathi Ragy in place of the *Vaisakha* crop -	$6\frac{1}{2}$	- - -	12	1,110684	1440	120	33,32			
Bily Jola in place of the *Vaisakha* crop - -	$4\frac{1}{2}$	- - -	12	1,110684	768	64	17,770909			
Kempa Jola in place of the *Vaisakha* crop - -	4	- - -	12	1,110684	384	52	8,8854			
Hessaru Jola in place of the *Vaisakha* crop - -	5	- - -	12	1,110684	576	48	13,328125			
Navony Bily, or *Mobu*, in place of the *Kartika* crop	$3\frac{1}{2}$	- - -	24	2,221368	480	20	11,106842			
Wheat *Juvi Godi* in place of the *Vaisakha* crop -	3	- - -	96	8,8854	960	10	22,213684			
Ditto *Hotay Godi* in place of the *Vaisakha* crop -	3	- - -	48	4,4427	480	10	11,106842			

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Rice.

The observations made at *Madhu-giri* on the cultivation of rice apply here in every respect, except that at *Sira* there are no *Callivays*, or canals brought from rivers; but the whole is watered from reservoirs, or by machinery. Two *Capilies*, wrought by two men and four oxen, water a *Colaga* of land ($1\frac{1}{2}$ acre) that is cultivated with rice.

Transplanted *Ragy, Cynosurus Coracanus*, of the kind called *Doda.*

The transplanted *Ragy* here is of two kinds: one is called *Doda Ragy*, and is that which at *Madhu-giri* is called *Gydda*, and which is there cultivated on dry-field. Here, on account of the different manner in which it is raised, it grows to a larger size. This is taken as a *Kártika* crop; but for this there is not time, if the supply of water has been sufficient for a *Vaisákha* crop of rice; and the crop of rice that follows it is but indifferent. The differences between the cultivation of this crop here, and at *Madhu-giri*, are as follow: The seedlings are watered twice a day, till they are two inches high; then only once a day. In 20 days they are fit for transplanting; and, before they are pulled, it is considered as necessary to loosen the soil by inundation. The field has five ploughings, and before the last is manured with dung. It is divided into plots by the same process as that which at *Madhu-giri* is used in the cultivation of *Jola*. The planted *Ragy* has water for the first time on the eighth day, and afterwards once only in 15 days. It is never weeded, but by occasionally plucking up with the hand any grass that may have grown.

Transplanted *Ragy*, of the kind called *Tripathi.*

The other kind of *Nat' Ragy* is called *Tripathi*, and grows in place of the *Vaisákha* crop; but it is evident, from the time required to bring this to maturity, that in one year these two crops can never be taken from the same field. The mode of cultivation is the same as for *Doda Ragy;* but the seed time is *Aswaja*, and the harvest *Vaisákha.* For a *Wocula-land* cultivated with *Ragy*, one *Capily*, with one man and two oxen, can raise a sufficient quantity of water.

Jola Holcus sorghum.

On rice land the farmers never willingly sow *Jola;* as, even should they have water, it totally prevents them from having rice

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as the next crop; but, in order to prevent the lands from being waste, the renters frequently compel them to cultivate it. This is one great evil of the tenure that has here been adopted, of letting the villages to the annual renters who bid the highest price. These men must make up their rent in the best manner they can; but they care not what injury they do to the land; as, if it be spoiled, they will next year offer less rent. By this means, in the end, both the farmer and the revenue suffer.

Vaisákha crop.

The *Jola* is most commonly taken in place of the *Vaisákha* crop, and, if there has been a preceding crop of *Doda Ragy*, cannot be cultivated; as the season is lost, before the *Ragy* is cut. After the *Jola*, if there be water, a *Kártika* crop of *Ragy*, and then a *Vaisákha* crop of rice, follow. In the course of the two months preceding and the one following the autumnal equinox, plough four times. In the course of the next month, after a rain, or after having watered the field, plough a fifth time, and drop the seed in the furrows, either with the hand or with the *Sudiky* (Figure 26) tied to the plough. Then form the field into plots, as described at *Madhu-giri*. At the end of six weeks after being sown, the *Jola* is allowed one watering, and another again in a month afterwards. A *Capily*, wrought by two men and two oxen, waters a *Colaga* of land, or about $1\frac{1}{2}$ acre; but in the intermediate time the men and cattle do much business. In the same manner are cultivated all the three kinds of *Jola* that are mentioned in the table.

A *Kártika* crop of *Jola* is sometimes taken, from what is here called *Magay* land; this is that which, for want of rain or cultivators, has been lying fallow. On the same year no *Vaisákha* crop can follow. The next *Kártika* crop must be *Ragy*, and that may be followed by a *Vaisákha* crop of rice.

Navony, or *Panicum italicum*.

In place of the *Kártika* crop, both *Bily* and *Mobu Navonies* are taken, and allow time for the *Vaisákha* crop of rice; but they injure it more than *Ragy* does. In the month preceding and that following the summer solstice, plough four or five times, and after the

third manure with dung. In the following month, after a heavy rain, or after having watered the field, sow with the drill, and harrow with the rake drawn by oxen. It is then divided into plots like a field of *Jola*; and once a fortnight, when there is no rain, water is given.

Wheats; *Triticum monococcum*, and *Triticum spelta*.

In place of the *Vaisákha* crop, when there is a scarcity of water, wheat, both *Juvi* and *Hotay* are sown on rice-lands. These grains may be followed by a *Kártika* crop of *Ragy*; but by this process the ground is as much exhausted, as if it had been sown with *Navony*. If the *Kártika* crop be altogether left out, the *Vaisákha* crop of rice following wheat will be as good as if the ground had been regularly cultivated for rice alone; and in India it is a commonly received opinion, that, where a supply of water admits of it, ground can never be in such good heart as when regularly cultivated by a succession of rice crops. Wheat requires a clay soil, and the manner of cultivating both kinds is the same. In the two months preceding, and the one following the autumnal equinox, plough five times. In the following month, after a rain, or after having watered the field, plough again, and drop the seed into the furrows. Then divide it into squares, as for *Jola*, and water it once a month. The straw is only used for fire. If given to cattle for fodder, it is supposed capable of producing the *distemper*.

Sugar-cane.

The ground for cultivating sugar-cane is divided into two equal parts, which are alternately cultivated; one year with cane, and the other with rice. It is watered either from the reservoirs, or by the machine called *Capily*. In the last case, a field of two *Colagas*, or three acres, one half of which is in sugar-cane, and the other in rice, requires the constant labour of four men and eight oxen. Day-labourers must also be hired to rebuild the boiling-house, to tie up the cane, and to weed. When the field is watered from a reservoir, one man only is regularly employed; but to plough, to plant, to weed, and to tie up the cane, both men and cattle must be

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hired in addition. Three kinds of cane are here cultivated. The most valued is the *Restalli*, which grows best on a black soil, in which there is much sand or gravel; a good crop of this, on a *Colaga-land*, produces 100 *Maunds* of *Jagory;* which is about 29½ hundred weight on an acre. The next in quality is the *Caricabo*, or *black-cane*. It requires a pure black mould, called *Eray bumi;* and, in a good crop, produces from a *Colaga-land*, 60 *Maunds* of *Jagory*, or from an acre nearly 17½ hundred weight. The poorest cane is the *Maracabo*, or *stick cane*. It is cultivated on the same kind of soil with the *Restalli;* but produces only half as much *Jagory* as the *Caricabo*, and that of a very bad quality, for it is quite black. The cultivation of the *Restalli*, however, is comparatively much more troublesome. In the course of the eight months following the summer solstice, the field must be ploughed eleven times; and once a month, during the whole of that time, 1000 sheep must be folded for one night on the field. It is then manured with mud from the bottoms of the reservoirs, and ploughed again twice. The channels are then formed, and in them the cuttings are laid down, two and two being always placed parallel. A *Colaga* of land requires 50,000. The channels are then filled with water, and the cuttings are trodden into the mud with the feet. The second watering is on the 4th day, the third watering on the 12th; afterwards the field, if the soil be good, must be watered once a fortnight; or once a week, if it part with its moisture quickly. On the 20th day the field is weeded with the small hoe called *Molu Potu*, which implies that the operation is done very superficially. On the 35th day the whole field is dug with the large hoe called *Yella Kudáli;* and, the earth being thrown up toward the canes in ridges, the channels for conveying the water run between the rows. About the 90th day the canes are tied up with a leaf of the plant in parcels of five or six, and once a month this is repeated. When the cane is ten months old, the crop begins, and in thirty days it must be finished.

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The farmers here say, that a fallow between the two crops of sugar-cane would not answer, and that the crop of rice gives strength to the ground.

Cultivation of wheat, *Jola*, and *Carlay*, in the bottoms of dry reservoirs.

No watered fields are here reserved for the cultivation of wheat, or of *Jola;* but when there is no rain, the bottoms of reservoirs are cultivated for these grains, and for *Carlay*. This kind of ground not being divided in *Colaga-lands*, no estimate can be formed of the produce; but both *Jola* and wheat thrive better on the rice-lands. The *Carlay* succeeds in the bottoms of reservoirs. The kind of *Jola* sown here is the *Agara.* The operation for all the three grains is the same, and is very simple. In the second month after the winter solstice, the ground is ploughed, and the seed is dropped into the furrow after the plough. It is then smoothed by drawing a plank over the ground, and no more trouble is required.

Reservoirs liable to be choked.

The soil in the bottom of the reservoirs is always a fine friable mud, being what is washed from the fields by the rains, and again deposited, when the water stagnates in the reservoirs. In all old reservoirs a great part is filled up by this soil, and thus their capacity is much diminished; and, when a village has been deserted for some time, unless the mound breaks down, its tanks in general become entirely obliterated. Nothing therefore can be more advantageous than the cultivators carrying away this mud as a manure for their land; and, as it is of an excellent quality, they would find their advantage in taking it, as fast as formed; at least in such parts of the country as afford them a permanent interest in the soil. In most places however, either from indolence or want of encouragement, or from both, the farmers neglect to remove the mud, and the public is put to a considerable expense in keeping the reservoirs clear.

Leaves used as manure.

The leaves that are here used as manure for rice lands are, the *Hoingay*, or *Robinia mitis;* the *Coghi*, or *Galega purpurea;* the *Yecada*, or *Asclepias gigantea;* the *Tumbay*, or *Phlomis esculenta,* Roxb: MSS.;

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the *Umuttay*, or *Datura metel;* the *Calli*, or *Euphorbium Tirucalli;* and the *Hughinay*.

Aug. 1—6. Dry crops.

At *Sira* scarcely any *Ragy* is cultivated as a dry crop. Those which are raised, are *Suja*, *Harica*, *Huruli*, *Huts'-Ellu*, *Avaray*, *Tovary*, *Shamay*, *Navony*, *Harulu*, *Hessaru*, *Alasunda*, or *Tadaguny*; *Barugu*, and cotton. By far the most common are *Shamay*, *Suja*, and *Huruli*.

Shamay, or *Panicum miliare*, E. M.

The *Shamay* is of three kinds; *Bily*, *Cari*, and *Maliga*, or *Mujica*. The cultivation for the three kinds is the same, but the seeds are always kept separate. The soil that agrees with them is the *Marulu* and *Daray*, or poor sandy and stony lands. This soil, if it were dunged, would every year produce a crop of *Shamay;* but, as that can seldom be spared, the *Shamay* is always succeeded by a crop of *Huruli*, which restores the ground; and alternate crops of these grains may be continued, without any fallow, or without injury to the soil. In the first four months of the year, commencing about the vernal equinox, at any convenient opportunity plough four times. Then, after a good rain, harrow with the rake drawn by oxen, and sow with the drill; putting the seed of the *Shamay* into the *Curigay;* and that of the pulses called *Avaray*, *Tovary*, *Hessaru*, *Huruli*, or *Alasunda*, into the *Sudiky*. The first two are reckoned the best. Then harrow with the rake drawn by oxen. They have here no estimation for the extent of fields cultivated in this way; but for every 48 *Seers* of *Shamay* they sow 12 *Seers* of some one of the pulses. The produce in a good crop will be twenty seeds of the *Shamay*. Of the others no account is kept; for the legumes, as they ripen, are gathered for family use. *Bily Shamay* ripens in 3½, and *Kari* in 4 months; the *Maliga* requires only 3 months, and is therefore preferred when the rains begin late; but it gives little straw, and therefore in favourable seasons the others are more eligible. *Shamay* straw is here reckoned better fodder than that of rice; and, when mixed with the husks of *Huruli* or *Tovary*, is

preferred even to that of *Ragy*. Except in case of necessity, *Jola* straw is never used.

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Suja, or *Holcus spicatus*.

The only *Suja* or *Cambu* sown here is that called *Hulu*. It is sown on soils similar to what are used for *Shamay*, and which, on the dry-fields of *Sira*, are the most common. It is never sown two years successively on the same ground; this however is not owing to its exhausting the soil, but to its roots being troublesome to remove. Next year the ground may be easily ploughed sufficiently well for *Huruli;* and in the course of the second year the roots of the *Suja* rot, so as to allow the ground to be fully cultivated without trouble. In the month following the vernal equinox, plough four times; and after the first rain that happens in the course of the two following months, sow the seed with the drill; putting the seed of the *Suja* in the *Curigay;* and that of the pulses called *Huruli* or *Tovary* in the *Sudiky*. Then harrow with the rake drawn by oxen; or, if the field be clear of weeds, smooth it with the *Mara*, or plank. At the end of one month use, three times, the *Cuntay*, or hoe drawn by oxen. In four months it ripens without farther trouble. 20 *Colagas*, or 160 seeds, are reckoned a good crop from twelve *Seers* sowing. Cattle do not like the straw, but eat the smaller part of it when mixed with other fodder. The full grown straw, which is as thick as a man's thumb, and about ten feet high, is used for fewel.

Pulse called *Huruli*, or *Horse-gram*.

The *Huruli*, like that at *Seringapatam*, is black and white mixed. It grows better on stony than on sandy soils; and gives the greatest crops when cultivated on land that has been waste, and over-run with bushes; but it also thrives tolerably on land that is alternately cultivated with it and *Shamay*, or *Suja*. In the month which precedes and that which follows the autumnal equinox, sow the seed broad-cast, and then cover it with the plough. In four months it ripens without farther trouble, and in a good season produces ten seeds. Both straw and husks are reckoned good for labouring

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cattle; but, owing probably to some idle prejudice, they are said to be bad for milch cows.

A plant producing oil, and called *Huts'-Ellu.*

The *Huts'-Ellu* is sown near villages, in places where rubbish and dirt are thrown. First, at the same season with the *Huruli*, sow the seed, and then plough the field twice. In three months it ripens without farther trouble, and in a good year produces sixteen seeds.

Navony, or Panicum italicum.

The *Navony* cultivated on dry-field is that called *Bily*, and is raised either on the two poorer soils, or on a black mould that has been prepared for it by a crop of the pulse called *Hessaru*. It is considered as exhausting the ground; but this is obviated by ploughing up the field immediately after the *Navony* has been cut, and thus exposing the soil to the air. In the two months following the vernal equinox, plough four times. With the next good rain, harrow with the rake drawn by oxen, and sow the seed with the drill; putting *Navony* in the *Curigay*, and the pulse called *Avaray* in the *Sudiky*. In three months it ripens without farther trouble, and in a good crop produces 96 seeds. For cattle, the straw is better than that of rice.

Harulu, or Ricinus palma Christi.

Harulu, of the kind called *Phola*, is here cultivated. For this a sandy soil is reckoned best; and as it is thought to improve the soil, the little *Ragy* that is sown on dry-field generally follows it. In the first month after the vernal equinox, plough twice; then, with the first rain in the next month, at every cubit's distance throughout the field, draw furrows intersecting each other at right angles. At every intersection drop a seed, and cover them with another furrow. After two months weed with the plough; and with the *Cuntay*, or hoe drawn by oxen, throw the earth in ridges toward the young plants. In six months it begins to give ripe fruit, which for three months is gathered once a week.

Pulse called *Hessaru.*

The *Hessaru* cultivated here is called *Cari*, or black, and requires a black soil, to which it is said to add much strength. It is therefore taken alternately with *Navony*, or with *Huts'-Ellu*, both of

which are considered as exhausting crops. It is cultivated exactly in the same manner as *Huruli* is, ripens in three months, and in a good year produces sixteen seeds. Except for feeding camels, its straw or husks are of no use.

Grain called *Barugu.*

Barugu is of two kinds; white, and black. A sandy soil of any kind agrees with this corn, which is also valuable as requiring very little rain. The straw is better fodder than that of rice. In the second month after the vernal equinox, plough three times. After the next rain, in the following month, either sow with the drill, and harrow with the rake drawn by oxen, or sow broad-cast, and plough in the seed. In three months it ripens without farther trouble, and in a favourable season produces sixteen seeds.

Cotton.

Near *Sira* a very small quantity of cotton is raised; and, like that of *Madhu-giri*, it is of a quality inferior to what is brought from *Balahari*, and other places nearer the *Krishna* river. The soil on which it is sown is a black clay containing nodules of lime-stone. In the two months following the vernal equinox, plough three times. At any convenient time, in the two next months, mix the seed with dung, and drop it in the furrows after the plough, forming lines about nine inches apart. A month afterwards plough again between the lines; and in order to destroy the superfluous plants and weeds, use the hoe drawn by oxen three times, crossing these furrows at right angles. The second and third times that this hoe is used, it must follow the same track as at first; otherwise too many of the plants would be destroyed. Between each hoeing three or four days should intervene. In six months the cotton begins to produce ripe capsules, and continues in crop four more. The plants are then cut close to the ground; and after the next rainy season the field is ploughed twice in contrary directions. A month afterwards it is hoed once or twice with the same implement, and it produces a crop twice as great as it did in the first year. In the third year a crop of *Shamay* or *Navony* must be taken, and in the fourth year cotton is again sown, as at first.

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Increase on the seed no guide for judging of the fertility of a country.

I have strong suspicions, that the chief of the village, or *Gauda*, from whom I had most of the above information, although a very sensible man, diminished in his accounts the produce of the different grains. There being no estimate of the extent of dry-lands here, it will be very difficult to form any comparison between the success of the operations of husbandry here and in other places. The increase on the seed is scarcely any guide; as in different places and countries the quantity sown on the same extent of ground is extremely various; and the only rule, on which we ought to depend, in judging of the success of agriculture, is the quantity of grain produced on the same extent of ground after deducting the seed. With the wretched climate and agriculture of the highlands of Scotland, four seeds of oats is reckoned a good crop; and at *Sira* the farmer expects 64 fold from his field of *Jola;* but after deducting seed, the highlander has 18 bushels from his acre, while the *Hindu* has only $17\frac{1}{2}$; for on the acre the former sows nearly 24 times as much seed as the latter does.

Actual produce, at Sira, of the dry-field.

I measured a field said to require 12 *Seers* of *Huruli,* or 2 *Seers* of *Suja,* or 12 *Seers* of *Shamay* for seed, and found it to contain $2\frac{24}{100}$ acres. On these data the acre requires only about $\frac{87}{100}$ parts of a peck for the seed of *Shamay* and *Huruli;* of the former, according to the *Gauda's* rate of twenty seeds, it would produce only about $3\frac{3}{4}$ bushels with a little pulse; and of the *Huruli* it would produce less than 2 bushels. An acre would sow about 0,124 parts of a peck of *Suja,* and produce something less than 5 bushels with a little pulse.

I am farther confirmed in believing that the *Gauda* under-rated the produce, by having measured a field which had been last year sown with *Huruli.* It took 24 *Seers* of seed, and in a bad year produced 5 *Colagas,* or 20 seeds, which is double what he stated as the produce of a good year. The field contained 3 acres 9 chains. At this rate, the seed for an acre is about $\frac{85}{100}$ parts of a peck, and the produce about four bushels. This last agrees with the account

obtained at *Madhu-giri* from *Trimula Nayaka*, which I consider as a fair one; and all the *Gauda's* statements will probably be found to require a similar amendment.

In the government of *Dilawur Khan* a measurement was made of all the *betel-nut* gardens in this district; an area of six poles in length by five in breadth being called a *Colaga*, or *Wocula-land.* About twenty years ago the *Sultan* extended this measurement to the whole district, and found that the pole was in length $13\frac{1}{8}$ *Sultany Gujas*, each of which is equal to $37\frac{5}{8}$ English inches. This would make the *Wocula-land* nearly $1\frac{16}{100}$ acre; but during the *Marattah* invasion all the accompts of the measurement were lost, and the *Wocula-lands* now in use are the old computed ones which existed formerly in the public registers. Of course, from favour shown to individuals, they are of very different sizes. I measured two fields, and found that by the one the *Wocula-land* contained $1\frac{397}{1000}$ acre, and by the other $1,\frac{5}{10}$. In my account of the productions of watered-land, I have taken the last as the standard, as it agrees with the result of my inquiries at *Madhu-giri.* It is very probable, however, that *Dilawur Khan's* estimate is more accurate; for, by having long governed the country, he certainly had better opportunities of ascertaining the fact than I could possibly have. In this case, the seed and produce stated for an acre in the table must be increased in the proportion of 150 to 116.

Measures. The measure of grain originally established here was 64 *Dudus* = 1 *Puddy;* 2 *Puddies* = 1 *Seer;* 4 *Seers* = 1 *Bulla;* 16 *Bullas* = 1 *Wocula* or *Colaga;* and 20 *Colagas* = 1 *Candaca.* *Purnea* has given orders, that the *Sultany Seer* should be used; and in fact it has been adopted, and 6 *Seers* are considered as equal to the *Bulla;* so that the *Candaca* and *Wocula* here are, at present, exactly the same with those of *Madhu-giri.*

Tenures. Except proprietors of gardens, none of the farmers here have any fixed property in their lands. The officers of government, or in their stead the renter, may give the land to any person who will

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pay a higher rent than the former occupant. In some villages a new bargain is made once a year; in others, it is usual to make a bargain for each crop. In general, the bargain is made for a certain sum of money; at other times the farmers will only agree to cultivate the lands according to the usual division of crops. In every village the custom in doing this differs. At the *Kasba*, or chief town of the district, the following is the manner in which it is done. The division is always made on the actual measurement. Upon every *Candaca*, or 1920 *Seers*, are paid,

	Seers.
To the government for *Icala*, explained below - -	192
To the *Amildar's* office, or *Cutchery*, for oil and stationary	24
To mendicant *Bráhmans*, *Jangamas*, and Mussulman *Fakirs*	12
To the *Toty*, or watchman - - - - - -	6
To the measurer - - - - - - -	6
To the *Pujáris* of the temples of the *Saktis*, &c. - -	24
To the *Suligaru*, or village officers:	
Gauda, or chief - - - - - -	24
Shanaboga, or accomptant - - - - - -	24
Talliari or *Tallawara*, or beadle - - -	24
Nirgunty, or distributor of water - - -	24
Barber - - - - - - - -	12
Blacksmith - - - - - - -	12
To the government - - - - - - -	768
To the farmer - - - - - - - -	768
Seers -	1920

The *Icala* is given in place of stoppages which were formerly made for officers, to whom the government now pays fixed salaries. The hereditary *Gauda*, or chief, receives his fee, whether he rents the village or not. Where the soil is bad, and machinery has been used to procure water, the government receives no *Icala*, and in place of one half has only one third share. In the *Kártika* crop the priests of the *Saktis* get nothing.

A plough wrought by one man and two oxen, if the reservoir afford all the water that is necessary, can labour two *Wocula*-lands of irrigated ground; but, if the *Capily* be used, this stock can only cultivate one *Wocula*-land. The richest farmer in the place, who is the *Gauda*, or chief of a village, whom I have before mentioned, has ten ploughs; no other person has above six. About a fourth of the cultivators have one plough, a half two, and the remaining fourth from three to six. A farmer who has four ploughs, and who may be considered as a man in easy circumstances, ought to have four men and four women servants with eight oxen. In seed-time and harvest he will require eight additional labourers. Two men and four oxen are required to work a *Capily* from sun-rise to sun-set. Men servants hired as *Batigaru*, or by the year, get monthly 8 *Fanams*, about 5*s.* 4*d.*, and women get half as much. A man's daily wages is $\frac{1}{4}$ of a *Fanam*, or about 2*d.*; a woman's $\frac{1}{7}$ of a *Fanam*, or about $4\frac{1}{2}$ farthings.

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Extent of land wrought by one plough; and stock.

Weights.

The weights used here are, 22 *Rupees* = 1 *Seer*; 56 *Seers* = 1 *Maund*, or $31\frac{14}{100}$ lb. By this every thing sold here is weighed; but goods sent to other countries, such as *Coco-nuts*, are weighed by a *Maund* of 48 *Seers*, or $26\frac{7}{10}$ lb.

Exchange of money.

Twice a month the *Cutwal*, or officer of police for the chief town of the district, assembles the merchants, and settles the exchange of money. At present the *Fanam* exchanges for $16\frac{1}{2}$ elephant *Dudus*, and is equal to $\frac{1}{13}$ of a *Sultany Pagoda*. Small copper coins called *Casu*, and equal to $\frac{1}{5}$ of the *Dudu*, are here in common currency; as are also the shells called *Cowries*, of which 16 are equal to one *Casu*. All accompts are kept in *Canter'-raya Pagodas* and *Fanams*.

Commerce.

The merchants of *Sira* possess considerable enterprise, and carry goods to the countries ceded to the *Nizam* on the south of the *Krishna*, to the country near *Darwara* ceded to the *Marattahs*, to *Chatrakal*, to the vicinity of *Nagara*, to *Seringapatam*, and to *Bangalore*; and merchants from all these countries resort to this mart.

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Commerce With the *Nizam's* dominions.

At present the trade with the *Nizam's* country is not safe; and the merchants, and other inhabitants, are rapidly emigrating into the *Rája's* dominions. The places, with which there was formerly an intercourse here, were *Ráya-durga*, *Kalyana-durga*, *Balahari*, *Gutti*, *Rajawully-Advany*, *Tadepatry*, *Pamudi*, *Dharmáwara*, *Nilomudodi*, *Penu-conda*, *Indu-pura*, *Modogusheria*, *Nedavena-hully*, *Cundurupi*, *Ratna-giri*, *Cumpuli*, *Hirialu*, *Cuddapa*, and *Condacundi*. The goods brought from thence are silk cloths, cotton cloths, plain and with silk borders, chintses, and coarse cotton cloths, all the manufactures of these places. The colours being better fixed, they sell higher than the goods of *Bangalore*. The returns from *Sira* are dried coco-nut kernels or *Copra*, *Betel-nut*, *Jagory*, *Popli* bark, *Lac*, and steel the manufacture of this neighbourhood. These are the staple articles; but occasionally oxen, buffaloes, boiled butter, or *Ghee*, oil, and tobacco have been sent. The merchants whom I here assembled at first asserted, that one half of the returns from hence were made in cash; but this they afterwards retracted, and alleged that the coco-nut kernels sent from hence greatly exceeds in value all the goods imported.

Commerce with the *Marattah* country.

The intercourse with the *Marattah* country is perfectly undisturbed; and the places with which it is carried on, are *Darwara*, *Hubuli*, *Gudagu*, *Lechmeshura-Butcaray*, *Mulugunda*, *Catricay*, *Humsagara*, and *Havery*. The imports from thence are cotton wool, thread white and red, coarse and fine red cotton cloth, white cotton cloth with silk borders, dark blue cotton cloth, chints, sackcloth or *Goni*, tent cloth, matrasses, blankets, dates, raisins, almonds, walnuts, *Carthamus* flowers or *Cossumba*, asafœtida, sulphur, and red-lead. The exports from *Sira* are oxen, buffaloes, *Popli* bark, a root called *Lavansa*, which, I believe, is that of the long pepper, *Lac*, and steel, with ¼ of cash. Of this last, however, I am doubtful.

Commerce with *Nagara*.

The imports from the *Nagara* country to *Sira* are *Betel-nut*, black-pepper, cardamoms, *Lavanga patri* a leaf used in medicine, *Cabob-china* (the buds of the *Laurus Cassia*), bastard cinnamon (bark of

the *Laurus Cassia*), and sandal-wood. The exports from *Sira* to *Nagara* are blankets, *Bangalore* cloths, country steel, tobacco, oil, boiled butter, or *Ghee*, buffaloes, and cash to the amount of one half of the imports.

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Commerce with *Chatrakal*.

The imports from *Chatrakal* consist of ready money for the purchase of sugar.

Commerce with *Seringapatam*.

The country near *Seringapatam* supplies *Sira* with a great deal of grain, and receives back ready money, boiled butter, oil, dry ginger, limes, and coco-nuts.

Commerce with *Bangalore*.

The black pepper and *Betel-nut* from *Nagara*, with some of the latter from this country, are sent to *Bangalore* for the manufactures of that place, and for the goods imported at *Madras* by sea.

Commerce with *Gubi*.

Most of the *Betel-nut* is disposed of at *Gubi*, at which place there is annually sold about 15,000 *Maunds*, or about 3,575 hundred weight. All this is not the produce of the district of *Sira;* but is collected from several others in the neighbourhood. The *Gubi* merchants allege, that at their fairs more than double this quantity is sold.

Copra.

The grand article of produce here for exportation is the *Copra*, or dried kernel of the coco-nut. Many of the merchants make advances to the proprietors of gardens. At the time of advance the price is fixed, and the farmer has no right to sell his *Copra* to another, and to repay the merchant who made the advances. The average price is four *Fanams* a *Maund*, or 11*s.* 3¼*d.* a hundred weight.

Carriage cattle.

The cattle employed in this trade are buffaloes and oxen. The buffaloes of the *Nizam's* country are the best, and daily carry 12 *Maunds* or 320 lb. three cosses, or about nine miles. The oxen of this country-breed are the best, and daily carry 8 *Maunds*, or 213 lb. four cosses or twelve miles. In order to be able to do this, these cattle must be fed on oil-cake, or on cotton-seed and straw. The *Nizum's* country, abounding with cotton, wonderfully improves the oxen that are bred in this neighbourhood. An ox bought here

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for four *Pagodas*, by keeping one year in the place, will be worth ten *Pagodas*. The native oxen of that country do not improve so fast, probably from having been always used to a stronger diet than those of this place have when young.

Manufactures; *Bily-Muggas.*

The weavers in *Sira* are of two kinds; the *Bily Muggas*, and *Dévángas*. The former weave a coarse thin muslin called *Shilla.* That made for the dress of women, called *Shiray*, is the coarsest, and is called *Wuntacuddy*. It is in pieces 18 cubits long by 2 broad, and sells unbleached for 5½ *Fanams*, or about 3*s*. 8*d*. The *Erucudy Shilla*, intended for men's dress; is finer; and is from 28 to 26 cubits long, by 1½ cubit broad. It sells from 6½ to 10 *Fanams* a piece (from 4*s*. 4*d*. to 6*s*. 8*d*.). These cloths are bought up by two sets of dyers; the *Niligaru*, who dye it blue; and the *Marattahs*, who dye with *Cossumba*, or flowers of the *Carthamus*. They advance money to the weavers for two or three pieces at a time.

Dévángas.

The *Dévángas* here make two thick coarse cloths; the one called *Cadi* is plain, and resembles what is made by the *Whalliaru* near *Bangalore;* and the other has red borders, like the cloth of the *Togotarus*. The whole of the cloth made here is used in the immediate neighbourhood.

Customs of the *Bily-Muggas.*

The *Bily-Mugga* weavers consider this name as a term of reproach, and call themselves *Curivina Banijigaru*. They are an original tribe of *Karnata*. Some of them are dealers in cloth or grain, and a few are farmers. They have no hereditary chiefs; but infractions of the rules of cast are punished by their clergy or *Jangamas;* who are, however, bound to act by the advice of the elders of the tribe, should the fault be of such magnitude as to require excommunication. An assembly of the heads of families settles disputes. They pretend to be one of the tribes of pure *Banijigas*, and to be capable of being appointed to the priesthood. They say, that there are six tribes of proper *Banijigas;* the *Badagulu*, the *Pancham*, the *Stalada*, the *Turcana*, the *Jainu*, and the *Curivina*. All these can eat together; but cannot intermarry, unless they have been appointed

Jangamas; and the descendants of these never marry with the laity, although among themselves they lose all former distinctions. Each of these six tribes are again divided into *Gótrams,* and a man and woman of the same *Gótram* can never marry. The *Gótrams* of the *Curivina* are sixty-six in number. They may marry as many wives as they please; but cannot divorce them, except for adultery; and it is not unusual for a husband to keep his wife after she has been guilty of this crime. Women are marriageable even after the age of puberty; and widows may live with a man in a kind of left-hand marriage, and be called *Cutigas,* or concubines; but both the man with whom they live, and their children, are considered as legitimate. If a woman leaves her husband, and cohabits with another man of the same cast, she is called a *Hadra;* but her children are not disgraced. Any woman, even an unmarried one, who has connexion with a man of a strange cast, is excommunicated. A widow ought to bury herself alive in her husband's grave; but the custom has become entirely obsolete. The people of this cast eat no animal food, nor drink any intoxicating liquor. They never take the vow of *Dáséri.* They are allowed to read all the books belonging to the sect, among which they do not reckon the *Védas.* They wear the *Linga,* and their adorations are principally directed to that emblem of *Siva.* Their women offer fruit and flowers to *Marima,* and the other *Saktis;* but this is not done by the men. They do not believe in the *Virika,* or spirits of chaste men. Their *Gurus* are the same with those of the *Pancham Banijigaru;* the five chief *thrones* being called *Paravutta* at *Humpa, Verupacshy* near the *Tungabhadra* river, *K*[illegible], *Balahully,* and *Nidamavudy.* Their lay followers of thic cast these *Gurus* make what is called *Detcha.* The *Detcha,* having shaved and washed his head, is instructed in some *Mantrams,* or forms of prayer, which are in the vulgar tongue, but which, like the *Upadésa* of the *Bráhmans,* are kept a profound secret. The *Guru* then bestows on the *Detcha* some consecrated herbs and water, and the *Detcha* in return gives him some money. This

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ceremony is analagous to the *Dhana* of the *Bráhmans*. The *Gurus* on their circuits receive also from their followers *Dharma*, or charity, or rather duty, but have no fixed dues. The *Einaru* attend at marriages, births, and funerals, at *Mala-paksha*, as the *Tithi* of the *Súdras* is called, and at all great feasts. On these occasions they perform *Pujá* to the *Linga*, reading some *Mantrams*, in the vulgar tongue however, and pouring over it some water and flowers, which by this means are consecrated, and then are divided among the people whom the occasion has assembled. The *Einaru* then eats something that has been prepared for him, and at marriages receives a small sum of money. The *Panchánga*, or village astrologer, attends on similar occasions, and reads *Mantrams* in the vulgar language. He is of course paid for his trouble.

Customs of the *Karnata Dévángas* who do not wear the *Linga*.

Here, some *Dévángas* of the *Karnata* nation do not wear the *Linga*; but still they consider *Cari Baswa Uppa* as their *Guru*. They will eat in the house of a *Dévánga* who wears the *Linga*, but he will not return the compliment. They eat in common, but do not intermarry with the *Telinga Dévángas*, who, like themselves, worship *Siva*, without wearing his indecent badge. They eat animal food, an indulgence which has probably occasioned the separation. They ought not to drink spirituous liquors. As a kind of excuse, or pretence for eating the flesh, they offer bloody sacrifices to the *Saktis*. They take the vow of *Dáséri*, but do not pray to the *Vírika*, or spirits of men sainted for chastity. They acknowledge transmigration, as a future state of reward and punishment.

Customs of the *Sadru Woculigas*.

The *Sadru Woculigas* are a cast of *Karnata* origin and *Súdra* birth; they are divided into two tribes that seem to have no communion; the *Cumblagataru Sadru*, and the *Sadru* simply so called. The *Sadru* proper are cultivators, both as masters and servants; they act as *Candachara*, ór native militia, and sometimes trade in grain. They have no hereditary chiefs; but their disputes are settled by a council of four *Sadru Gaudas*, or chief farmers, who also punish all transgressions against the rules of cast, excommunicating licentious

women, and other heinous offenders, and reprimanding those who have been guilty of less enormous faults. By religion they are divided into three classes, those who worship *Jaina*, those who worship *Siva*, and those who worship *Vishnu* under the form of *Vencaty Rámana;* but this does not prevent intermarriages, and the woman always adopts the religion of her husband. They are also divided into a number of families analagous to the *Gótrams* of the *Bráhmans;* and a man never intermarries with a woman of the same family. They have among them a bastard race, descended from widows, who have become the kind of concubines called *Cutigas;* but they are not numerous, and are held in great contempt by the others. The *Gauda* whom I have so often mentioned is the person that gives me the information concerning the cast. He is a worshipper of *Vencaty Rámana*, and denies any belief in a future state; his worship of the gods being performed with a view of obtaining temporal blessings. This sect take the vow of *Dásêri*, and bury the dead. They can write accompts, but have no books nor science. They eat no animal food, and ought not to drink spirituous liquors. They are allowed as many wives as they can obtain; but do not divorce them for any cause except adultery. Girls continue to be marriageable even after the age of puberty; and widows are not expected to bury themselves with their husbands bodies; but their becoming concubines of the kind called *Cutigas* is considered as very disgraceful to all their connections. Their *Guru* is *Tata Achárya*, an hereditary chief of the *Sri Vaishnavam Bráhmans.* He bestows on his followers holy-water and consecrated victuals, and accepts their charity. The *Panchánga*, or village astrologer, is their *Puróhita*, and attends at marriages, births, the building of a new house, and at *Mala-paksha*, the ceremony which the *Súdras* annually perform in commemoration of their deceased parents. The *Sadru* who worship *Siva* are but few in number, and wear the *Linga.* The third sect of *Sadru* worship only the god *Jaina*, but do not intermarry with the true *Jainaru.* These burn the dead. The *Gauda* says, that

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formerly all the *Sadru* were *Jainu;* but that his ancestors, disliking that religion, betook themselves to worship *Vishnu.* They have not adopted the worship of the *Saktis,* of *Dharma Rája,* nor of the *Víríka.*

Customs of the *Ladaru.*

The *Ladas,* or *Ladaru,* have a language quite different from all the others that are spoken south of the *Krishna* river. This language they call *Chaurasi;* and say, t[illegible] a city called *Caranza,* which is near the river *Gódávari.* In fact, it is a dialect of that spoken near *Benares,* to which the others have much less resemblance. The *Ladaru* say, that, in consequence of a famine in their own country, about five hundred years ago, they came to this neighbourhood. They serve as cavalry; trade, especially in horses; and farm lands, but never cultivate them with their own hands. They assume the title of *Kshatryas* of the family of the sun, and wear a string like the *Bráhmans.* They will not intermarry with the *Rajputs,* or other pretenders to a royal descent; but they are treated by the *Bráhmans* merely as *Súdras,* and in fact seem to be the highest rank of *Súdras* in their native country, like the *Kayashthas* of Bengal, or the *Kerit Nairs* of *Malyala.* They are of 14 different families, like the *Gótrams* of the *Bráhmans;* and some are followers of the *Siva Bráhmans,* and some of the *Sri Vaishnavam:* but this does not produce a separation of cast; for the woman always adopts the religion of her husband. They have no hereditary chiefs; but the affairs of the tribe are managed by an assembly of the heads of families. For small faults these assemblies reprimand; for adultery, or for eating forbidden food, or with forbidden persons, they excommunicate. Many of them read *Sanskrit,* and study every kind of book except the *Védas,* which they never presume to inspect. My informers are worshippers of *Vishnu;* yet their *Guru* is a *Smartal Bráhman,* who bestows consecrated victuals and holy-water, and receives their *Dharma.* When they are 6 or 7 years of age, they receive from the *Panchánga* their first thread, and *Upadésa,* at a ceremony called *Upanéna.* At this the *Panchánga* reads

Mantrams, as also at births, marriages, full and new moons, at *Sankrántis*, or the first days of the solar months, at funerals, and at the *Mala-paksha* lately mentioned. These *Ladas* sacrifice to the *Saktis*, especially to the goddess *Bhawání*. The *Pujáris* or priests in the temples of this idol are called *Bombolas*, who observe the rules of *Sannyási*, especially celibacy, and yet go absolutely naked. They have disciples, who are also *Sannyásis*, but who are not considered as sufficiently holy to be allowed to show their nudities. Part of the sacrifices are eaten by the votary, and part by the *Bombola;* but the animal is sometimes made a burnt offering to the idol, which in this country is done by no other cast. This burnt-offering is by the *Ladas* called *Hómam*, which is the same name that the *Bráhmans* use for their burnt-offerings; but these always consist of flour, or other vegetable matter. It is true, that the *Bráhmans* have a burnt sacrifice of animals, which they call *Yagam;* but it must be preceded by such a severity of penance, and is attended with such enormous expense, that no one in these degenerate days is either willing or able to undertake such an offering. The proper *Sakti Pújá*, that ought to be performed to *Bhawání*, has also fallen into disuse here among the *Ladas;* but my interpreter says, that at *Madras* it is very common. The votary takes an animal, and offers it as a sacrifice to the idol in presence of a beautiful young woman who is perfectly naked. It is supposed, that any person who, while in the performance of this sacred ceremony, should even look with desire at the charms exposed to his view, would be instantly struck dead; no one, therefore, undertakes it who has not great confidence in the power which he has over his passions. By the *Bráhmans* this ceremony is much condemned, and ought to deprive any one of his cast that attempted its performance; yet some of them are said in a private manner to have recourse to this superstition, as it is supposed to have wonderful efficacy in procuring temporal success and felicity. Some of the *Ladaru* take the vow of *Dásèri*, and at the same time receive *Chakrántikam*. These beg only one day in the week,

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following on the other six their usual professions; and they never travel about as vagabonds making a noise with bells and conchs. The *Ladas* burn their dead, who ought to be accompanied on the pile by their widows; but this custom has become obsolete. Widows are not permitted to become concubines of the kind called *Cutigas*, nor are the men allowed to keep those called *Hadras*. A girl, after ten years of age, is no longer marriageable. The men may take as many wives as they can procure; but can only divorce them for adultery. Persons of this cast drink no spirituous liquors; and, as is usual in Bengal, eat no animal food, except that which has been offered as a sacrifice.

END OF VOL. I.

Printed by W. Bulmer and Co.
Cleveland-row, St. James's.